



APPLIED ECOLOGICAL SERVICES
GREEN INFRASTRUCTURE QUALIFICATIONS - MIDWEST

Specialists in Ecological Science, Restoration, Management, and Research





Green Infrastructure

Capabilities & Qualifications



Prairie Crossing Conservation Development

Green Infrastructure is a term that can encompass a wide array of specific practices, and a number of definitions exist. American Rivers says Green Infrastructure is an approach to water management that protects, restores, or mimics the natural water cycle.

The U.S. EPA says Green Infrastructure uses vegetation, soils, and other elements and practices to restore some of the natural processes required to manage water and create healthier urban environments. The EPA website also says that at the city or county scale, green infrastructure is a patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water, and highlights Milwaukee's Green Seams program as a model.

AES developed the Green Seams program 17 years ago for the Milwaukee Metropolitan Sewerage District when it was called the MMSD Conservation Plan. AES, in fact, has been developing programs and project designs for green infrastructure long before the term was coined.

AN ECOLOGICAL APPROACH

To view Green Infrastructure only as open space used for flood or CSO reduction is an opportunity missed. AES promotes an ecological approach that provide multiple ecological and community benefits through restoration with native plant species.

Native species chosen for appropriate hydrologic conditions enhance infiltration when designed in a Stormwater Treatment Train™, a green infrastructure concept AES pioneered in the mid-90s. An STT is a source control system, using restored ecological systems (wetlands, upland prairies and forests) in a naturalized sequence to hold much of the rainwater where it falls while filtering stormwater runoff. The result — reduced runoff rates and volume, reduced flooding, improved water quality, reduced erosion, recharged groundwater and protected downstream aquatic resources.

At Prairie Crossing, AES designed and built a “stormwater treatment train” to manage runoff from rooftops and roads. This hybrid stormwater management system improved the water quality of Lake Leopold, and is used by the Illinois Department of Natural Resources as a rearing area for state-protected, non game fish species. The populations thriving in the man-made Lake Leopold are being used to restock natural lakes in Illinois where the species have been declining.

We mimic nature, viewing rainwater as a valuable resource on a landscape. Our design approach addresses challenges of urban watersheds by managing runoff with a variety of structural and nonstructural Best Management Practices (BMPs) to encourage stormwater capture, storage, and infiltration. The ultimate objective is to replicate, or closely approximate, pre-development site hydrology, while maximizing secondary benefits, such as water quality improvement, flood reduction, groundwater recharge, habitat restoration, and enhanced site aesthetics.



Green Infrastructure

Capabilities & Qualifications



SELECTED RECENT PROJECTS

Ecological Consulting Services for the Village of Algonquin, Illinois

City of Appleton, Native Vegetation Restoration and Management, Appleton, WI

Elm Grove - Tonawanda School Wetland Restoration Design-Build Wetland Restoration, Elm Grove, WI

Green Ridge and Manakiki Golf Courses, Stream Restoration and Design-Build, Cleveland MetroParks, Wickliffe and Willoughby Hills, OH

Humboldt Blvd Bluff Stabilization Milwaukee River Greenway Corridor, Milwaukee, WI

Riverboat Road Streambank Restoration, Milwaukee, WI

Washington Avenue Pier EcoPark, Restoring Philadelphia's Ellis Island, Philadelphia, PA

Monitoring of the Wild Meadows Conservation Development in Medina, MN was implemented to measure runoff volume, rate, and water quality parameters at various locations to establish stormwater management system performance. The analyses indicated the system was providing an effective run-off rate, volume control and water quality treatment. Performance monitoring is informative for decision makers to comply with water quality standards and to develop a better understanding of the actual maintenance and life-cycle costs when assessing cost benefit analysis.

AES ecologists have completed hundreds of green infrastructure and urban conservation design projects, including park and planning initiatives using natural and naturalized structures – integrated with traditional stormwater management systems.

GREEN INFRASTRUCTURE PROJECT EXAMPLES

Gary Green Links, Gary, Indiana. AES served as the ecological leader of a multidisciplinary team that created a master plan to design, implement and manage a natural resources greenway and recreational corridor—the Gary Green Link—that rings the City of Gary by connecting the Grand Calumet River, the Little Calumet River, and the Lake Michigan shoreline. Gary Green Link is also the first link in a larger initiative, the Marquette Greenway Plan, to connect seven Indiana communities along the Lake Michigan shoreline. AES ecologists conducted an inventory of all natural vegetation communities in the project area and developed recommendations for protection, acquisition, conservation and management of natural areas and important open space corridors.

MMSD Conservation Plan / Green Seams. AES served as ecological consultant on a project team led by The Conservation Fund to develop a comprehensive Conservation Plan for the Menominee River, Oak Creek and Root River watersheds within the Milwaukee Metropolitan Sewerage District (MMSD). The team developed the plan which is now implemented as the MMSD GreenSeams program, for the acquisition, protection and/or restoration of important open spaces that would be useful for flood reduction, including floodplains, riparian habitats and environmental corridors.

Stormwater Detention Basins – Assessment | Enhancement | Management. AES specializes in helping communities improve urban and suburban landscapes through the design and implementation of sustainable ecological solutions. We work at all scales, from watersheds to green infrastructure systems to single stormwater detention basins, large or small. Our solutions incorporate the main functions of stormwater basins — protection of water quality under the Clean Water Act, control of flooding, and groundwater recharge. But our ecological approach adds value by enhancing recreational and aesthetic uses while improving ecological services such as wildlife habitat, pollinator food sources, and greenway landscape linkages.



Sustainable Stormwater Management



Ecological Consulting Services for the Village of Algonquin, Illinois



Blue Ridge - After Detention Basin Retrofit

Client: Village of Algonquin
Contact: Michele Zimmerman
Assistant Director of Public Works
847.658.2754
mzimmerman@algonquin.org
Project Type: Ecological restoration & maintenance services
Location: Algonquin, IL
Timeline: 2002 – Ongoing

Applied Ecological Services integrates ecological restoration perspectives into its consulting and contracting divisions, bringing innovative solutions to the wide variety of challenges typically faced by municipal clients.

Since 2002, AES has worked on a consistent basis with the Village of Algonquin, IL, most recently as its primary environmental consultant, helping the municipality fulfill its commitment to becoming a sustainable community. AES works closely with the Algonquin Public Works Department providing assistance in issues such as water quality protection, stormwater management, watershed management, stream restoration, natural area restoration and maintenance, park naturalization, wetland management, and natural resource assessments.

The following projects with the Village of Algonquin illustrate the broad spectrum of our sustainable municipal environmental and ecological services, organized topically.

Project Examples

Blue Ridge (2012 - 2015). AES partnered with the Village of Algonquin to convert a 6.3-acre detention basin in an older residential area from a mowed turf grass to a naturalized detention basin. Existing low flow concrete channels were also disrupted and adjacent wetland cells created to capture and filter stormwater runoff and provide wildlife habitat. The project included removal of existing turf grass followed by replacement with native prairie vegetation. The existing low flow concrete channels were also disrupted and wetland cells excavated to create an attractive, low-maintenance detention facility that not only holds, infiltrates, and treats polluted stormwater, but also provides beneficial wildlife habitat in a heavily urbanized area of the Village. The project also includes three years of maintenance and monitoring by AES in order to meet vegetation performance standards.



Village of Algonquin continued



Countryside and Yellowstone - Detention Retrofit
Three Years After Implementation



Creeks Crossing - Post-Construction Stream and
Riparian Area

Countryside and Yellowstone (2006 - 2009). In 2007, the Village of Algonquin hired Applied Ecological Services, Inc. (AES) to complete a detention basin retrofit for two basins known as Countryside Detention and Yellowstone Detention. Under pre-retrofit conditions, both basins were dry bottom, planted with mowed turf grass, and stored/infiltrated very little water during rain events. The goal of the Village was to retrofit the basins into attractive, low-maintenance facilities landscaped with native vegetation.

Creeks Crossing Stream and Riparian Area (2016 - 2019). Following the economic downturn in 2008, the Village of Algonquin acquired approximately 20 acres of land that was proposed to become residential homes as part of Creeks Crossing Subdivision. The site consisted of a degraded stream corridor and upland areas proposed for homes. In 2015, the Village decided to turn the area into ecologically-restored open space with passive recreation.

Sauwanas Creek (Design + Construction 2017 - 2020) (Maintenance 2020 - 2022). The Souwanas Creek Phase 2 Restoration Project is located on Village of Algonquin owned property south of Souwanas Trail. Prior to ecological restoration, Souwanas Creek was incised and exhibited highly eroded streambanks. Soil eroded from the streambanks made its way downstream to the Fox River. The riparian area consisted of degraded wetlands dominated by invasive reed canary grass and degraded oak savanna overrun by invasive basswood, sugar maple, elm, and buckthorn.

Spella Fen (2012 - 2016). Spella Fen is part of the larger Ted Spella Park wetland complex owned by the Village of Algonquin along the west side of Woods Creek. Prior to ecological restoration, the seven-acre site was dominated by invasive buckthorn with remnant pockets of high quality wet prairie and fen wetland. A walking trail also traverses the site and connects to a nearby subdivision to the west and extensive network of trails to the east along Woods Creek.



Village of Algonquin continued



Woods Creek

Woods Creek (2015 - 2017). The Woods Creek Streambank Stabilization Project is located within Spella Park which is part of the Woods Creek Watershed. Prior to restoration, a significant amount of non-point source pollution entered Woods Creek from highly incised and eroded streambanks. This polluted water eventually made its way to the Fox River near downtown Algonquin. AES designed and permitted the Woods Creek Streambank Stabilization Project in 2015 - 2016. The project was bid to a qualified contractor with work completed in 2017 including ecological restoration of the stream channel, streambanks, and immediate riparian corridor. This was accomplished by creating a two-stage floodplain channel with appropriately spaced riffles. Invasive vegetation along the streambanks and riparian corridor was eradicated then seeded and/or planted with native prairie vegetation.



Woods Creek - Post-Construction

Woods Creek Reach 10 Restoration (2018 - 2019). The Woods Creek Reach 10 Restoration Project is located in Ken Carpenter Park between Algonquin and Randall Roads in Lake in the Hills, Illinois. Prior to restoration, a significant amount of eroded sediment from highly incised and eroded streambanks made its way to Woods Creek Lake (see map below) downstream resulting in periodic and costly dredging by the Village. Water exiting Woods Creek Lake makes its way to the Fox River near downtown Algonquin.



City of Appleton Native Vegetation Restoration and Management



Ballard Pond offers attractive native vegetation and added functionality as a stormwater detention pond.

Client: City of Appleton
Contact: Peter Neuberger, P.E.
Dept. of Public Works
(920) 832-6477
peter.neuberger@appleton.org
Project Type: Stormwater Management
Location: Appleton, WI
Size: 80 acres (34 facilities)
Timeline: 2005–Ongoing



In 2005, the City of Appleton wanted to pursue alternative stormwater management solutions. The City retained AES, experts in stormwater management, native vegetation, and shoreline restoration. AES Contracting crews installed native vegetation in eight detention ponds and maintained and monitored 34 stormwater facilities to increase native diversity, improve aesthetics and improve the overall water quality of the City.

Over the course of the project, our crews have installed thousands of native plugs and seed to increase the species diversity of the areas. They also have installed shoreline erosion control treatments such as coir logs and erosion blanket to help establish new plantings and buffer them from dynamic water fluctuations that are typical of urban stormwater facilities.

In addition, our crews are responsible for the seasonal maintenance for each of these new and existing plantings. Routinely they inspect, assess and apply various techniques to enhance the quality of the ecology of each area. Standard practices include prescribed fire, spot herbiciding of exotic invasive species and mowing exotic annuals.

An important aspect of the project is education and outreach to area residents. AES crews often speak with and teach local homeowners about the projects and the benefits of maintaining native vegetation for water quality projects.



Project Information:

Project Name: Appleton Native Vegetation Management

Address/City/State/Zip: 100 North Appleton Street, Appleton, WI 54911

Type of green infrastructure installed (check all that apply):

- | | | |
|--|--|--|
| <input type="checkbox"/> Green Roofs | <input type="checkbox"/> Rain Barrels | <input type="checkbox"/> Rain Gardens |
| <input checked="" type="checkbox"/> Constructed Wetlands | <input type="checkbox"/> Cisterns | <input type="checkbox"/> Soil Amendments |
| <input checked="" type="checkbox"/> Native Landscaping | <input checked="" type="checkbox"/> Stormwater Trees | <input type="checkbox"/> Other, Click or tap here to enter text. |
| <input type="checkbox"/> Porous Pavement | <input checked="" type="checkbox"/> Bioswales | |

Area of specialty for this project (check all that apply):

- | | | |
|--|---|---|
| <input type="checkbox"/> Design | <input checked="" type="checkbox"/> Landscaping | <input type="checkbox"/> Downspouts and Gutters |
| <input type="checkbox"/> Engineering | <input checked="" type="checkbox"/> Maintenance | <input checked="" type="checkbox"/> Inspection |
| <input checked="" type="checkbox"/> Construction | <input type="checkbox"/> Plumbing | |

Project (Property) Owner Information:

Owner's Name: Peter Neuberger

Address/City/State/Zip: 100 North Appleton Street, Appleton, WI 54911

Phone: 920-832-6477

Email: Peter.Neuberger@Appleton.org

Project Construction Information:

Construction Management Vendor: Applied Ecological Services

Project Manager Name: Josh Kraemer

Project Manager's Vendor history: ☒ currently employed ☐ no longer employed ☐ other Click here to enter text.

Email: Joshua.kraemer@appliedeco.com

Contract information (if applicable): \$100,000-\$300,000 varies by year (AES has bid and won this every year since 2005)

Final Contract Amount (contracted and amended if applicable): variable by year

Construction Start date (contracted): 5/1/2005

Construction Start date (actual): 5/1/2005

Construction End date (contracted): 12/31/2021

Construction End date (actual): 12/31/2021

Was the project completed on time? ☒ Yes ☐ No; Explanation: Click here to enter text.

Was the project completed on budget? ☒ Yes ☐ No; Explanation: Click here to enter text.

Was the project completed to the owner's satisfaction? ☒ Yes ☐ No; Explanation: Click here to enter text.

Project Description (Be sure to include cost information, photos, and a detailed description of the work performed by the Vendor applicant): Provide miscellaneous consultations and meetings. Perform Aquatic Inspections with Reports. Reports to include detailed listing of any invasive aquatic species found to be present at any given site followed by a detailed breakdown of recommended management activities to be performed in response, complete with target species,

date of application, and listing of type of chemistry used for control. Chemically treat wet ponds for aquatic invasive species such as Curly-Leaf Pondweed and Eurasian Water Milfoil. Chemically treat wet ponds for excessive algae. Apply appropriate herbicide to control invasive species. Cut and treat woody vegetation. Mow vegetation to approximately 6" to 8" height. Conduct controlled prairie burns. Perform administrative activities associated with prairie burns. Furnish and install native prairie grass and/or forb seeding on sideslope and upland areas. Furnish and install native wet mesic prairie seed on shoreline areas. Conduct site preparation using appropriate herbicide application, followed in most cases by light discing to loosen soil but preserve vegetative residue. Furnish and install emergent plants in pond emergent zones, wetland depressional areas, and channels. Furnish and Install Erosion Mat Class I Type A Erosion Control Blanket on pond sideslope areas. Furnish and install herbivore protection fencing around emergent planting areas. Perform routine maintenance of fountain type pond aerators, including removing aerators each fall, cleaning and storing each aerator at an offsite facility provided by the contractor, and re-installing aerators each spring. Furnish and Install Turf Reinforcement mat, including initial fine grading, furnishing, placing and blending approximately 1 ½ inches of topsoil into the TRM. Furnish and install native plant plugs. Furnish and install trees and shrubs. Maintain existing herbivory fencing around tree pods. Periodically inspect all City stormwater facilities. Install and maintain native plant communities in addition to prairie and emergent zone, including such types native to this part of the state as shrub carr, swamp conifer, oak savannah, northern hardwood forest, etc. and have familiarity with these plant community types, especially as they occur in N.E. WI.

Customer Service Approach

Please provide a description of your firm's customer service approach. This section should give the reviewer a good idea of how conflicts with clients are resolved or how issues that arise during work are resolved. Please provide your customer service approach and at least one example of how your firm has implemented this approach.

The City of Appleton project has been, and will continue to be, a top priority for Applied Ecological Services. We understand that it is imperative for our key staff members to be available to the City at all times and throughout all phases of the contract work. Our team also recognizes that the selected native vegetation contractor will need to coordinate and work closely with City staff to ensure cost-efficient and effective monitoring and maintenance of all stormwater facilities. AES' Project Manager, Josh Kraemer, and key staff members are available by cell phone or email at all times to meet the City's needs and coordinate activities with City staff. AES has a local field office located in Brillion, Wisconsin, which is approximately ten miles from Appleton. This location was chosen strategically, specifically for the purpose of serving the City of Appleton, to reduce response times and increase communication between AES and the City. For this project, AES has also partnered with Lake and Pond Solutions, a local firm with proven aquatic expertise. Our local presence allows us to mobilize staff and resources quickly to complete our contracted work on time and on budget and to immediately respond to the City upon notification of any problems or concerns. Typical urgent response times can be the day of notification or the next day. Our project team has a strong ecological restoration background from the planning stages to installation through maintenance and eventual sign off from regulatory agencies. As such, we work closely with owners, landscape architects, engineers, general contractors, subcontractors, ecologists, local, state, and federal governments and regulators to resolve issues early in the process. Our Contracting crews are very experienced implementing and managing native landscape restorations and stormwater management projects throughout Wisconsin and across the country. Plants for our local projects are grown in our 300-acre nursery, Taylor Creek, located in Brodhead, Wisconsin, which is within 200 miles from Appleton. We have collection sites throughout Wisconsin with genetic origins much closer in many cases.



Elm Grove - Tonawanda School Wetland Restoration

Design-Build Wetland Restoration



Large wetland pool in the southern parcel where there was once large piles of woodchips and landscape fill.

Client: Village of Elm Grove
Contact: David DeAngelis, Village Manager
262.782.6700
ddangelis@elmgrovewi.org
Project Type: Design-Build Wetland Restoration
Location: Elm Grove, Waukesha County, WI
Project Size: 2.25 Acres
Timeline: Fall 2018 - Summer 2019



Wetland pool in the southern parcel improving runoff water quality before draining into the adjacent Underwood Creek.

The Elm Grove-Tonawanda School wetland restoration project consisted of the design and construction of two small, floodplain wetlands adjacent to a tributary to Underwood Creek. Following tree die-off, the former black-ash wetland, covered in a layer of woodchips from tree removal, had degraded such that it was overtaken by cattails and other invasive species.

The site consists of a northern parcel and a southern parcel separated by Underwood Creek Parkway. The northern parcel was restored with its primary function being habitat and flood/pollutant attenuation. The southern parcel was designed for these functions as well, with the addition of serving an educational purpose for the adjacent Tonawanda Elementary School.

In the northern parcel, the design implements five shallow, wetland scrapes, native plantings, and logs placed for reptile and amphibian habitat. A rock riffle placed in the adjacent tributary increases the frequency that this area floods, improving water quality through wetland processes and providing water for these habitats.

In the southern parcel, a large wetland pool is the central feature, with native emergent plantings and an intermediate depth providing excellent habitat for reptiles and amphibians, as well as waterfowl. The hydrology of this wetland area is driven by overland flow, and as such several step pools are implemented to reduce flow velocity, regulate temperature, and remove sediments before the water enters the wetland area.

The combination of the processes occurring in the step pools and the wetland itself, serves to improve runoff water quality before it drains into the adjacent tributary, as well as providing runoff attenuation. To improve aesthetics of the wetland area and provide education about native plant species, showy native plant species were chosen for the area.

The combination of the wetland structures, native plantings, and improved habitat demonstrate for students and the surrounding community the many benefits provided by wetlands.

Project Information:

Project Name: Elm Grove-Tonawanda School Wetland Restoration

Address/City/State/Zip: 13605 Underwood Pkwy, Elm Grove, WI 53122

Type of green infrastructure installed (check all that apply):

- | | | |
|--|---|--|
| <input type="checkbox"/> Green Roofs | <input type="checkbox"/> Rain Barrels | <input checked="" type="checkbox"/> Rain Gardens |
| <input checked="" type="checkbox"/> Constructed Wetlands | <input type="checkbox"/> Cisterns | <input checked="" type="checkbox"/> Soil Amendments |
| <input checked="" type="checkbox"/> Native Landscaping | <input type="checkbox"/> Stormwater Trees | <input type="checkbox"/> Other, Click or tap here to enter text. |
| <input type="checkbox"/> Porous Pavement | <input checked="" type="checkbox"/> Bioswales | |

Area of specialty for this project (check all that apply):

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> Design | <input checked="" type="checkbox"/> Landscaping | <input type="checkbox"/> Downspouts and Gutters |
| <input checked="" type="checkbox"/> Engineering | <input checked="" type="checkbox"/> Maintenance | <input type="checkbox"/> Inspection |
| <input checked="" type="checkbox"/> Construction | <input type="checkbox"/> Plumbing | |

Project (Property) Owner Information:

Owner's Name: Village of Elm Grove; David DeAngelis, Village Manager

Address/City/State/Zip: Click here to enter text.

Phone: 262.782.6700

Email: ddangelis@elmgrovewi.org

Project Construction Information:

Construction Management Vendor: Applied Ecological Services

Project Manager Name: Tom Tilkens

Project Manager's Vendor history: ☒ currently employed ☐ no longer employed ☐ other Click here to enter text.

Email: tom.tilkens@appliedeco.com

Contract information (if applicable): Click here to enter text.

Final Contract Amount (contracted and amended if applicable): \$130,000

Construction Start date (contracted): 6/28/2019

Construction Start date (actual): 6/28/2019

Construction End date (contracted): 7/30/2019

Construction End date (actual): 7/30/2019

Was the project completed on time? ☒ Yes ☐ No; Explanation: Click here to enter text.

Was the project completed on budget? ☒ Yes ☐ No; Explanation: Click here to enter text.

Was the project completed to the owner's satisfaction? ☒ Yes ☐ No; Explanation: Click here to enter text.

Project Description (Be sure to include cost information, photos, and a detailed description of the work performed by the Vendor applicant):

The Elm Grove-Tonawanda School wetland restoration project consisted of the design and construction of two small, floodplain wetlands adjacent to a tributary to Underwood Creek. Following tree die-off, the former black-ash wetland, covered in a layer of woodchips from tree removal, had degraded such that it was overtaken by cattails and other invasive species. The site consists of a northern parcel and a southern parcel separated by Underwood Creek Parkway. The northern parcel was restored with its primary function being habitat and flood/pollutant attenuation. The southern parcel was designed for these functions as well, with the addition of serving an educational purpose

for the adjacent Tonawanda Elementary School. In the northern parcel, the design implements five shallow, wetland scrapes, native plantings, and logs placed for reptile and amphibian habitat. A rock riffle placed in the adjacent tributary increases the frequency that this area floods, improving water quality through wetland processes and providing water for these habitats. In the southern parcel, a large wetland pool is the central feature, with native emergent plantings and an intermediate depth providing excellent habitat for reptiles and amphibians, as well as waterfowl. The hydrology of this wetland area is driven by overland flow, and as such several step pools are implemented to reduce flow velocity, regulate temperature, and remove sediments before the water enters the wetland area. The combination of the processes occurring in the step pools and the wetland itself, serves to improve runoff water quality before it drains into the adjacent tributary, as well as providing runoff attenuation. To improve aesthetics of the wetland area and provide education about native plant species, showy native plant species were chosen for the area. The combination of the wetland structures, native plantings, and improved habitat demonstrate for students and the surrounding community the many benefits provided by wetlands.



Green Ridge and Manakiki Golf Courses

Stream Restoration / Design-Build



For Cleveland MetroParks and the Chagrin River Watershed Partners (CRWP), AES designed and constructed a stream and riparian corridor restoration along the headwater tributaries to Deer Creek/Gully Brook at Green Ridge Golf Course in the City of Wickliffe, OH. The project also involved the conversion of an inline pond to a stream and wetland complex at the Cleveland Metroparks Manakiki Golf Course in the City of Willoughby Hills. The project was funded by the U.S. EPA Great Lakes Restoration Initiative.

Our approach to both project sites consisted of strategic excavation and grading and installation of bioengineered bank stabilization treatments. We also designed instream structures to halt the advance of channel incision, prevent streambank erosion, provide in-stream habitat for macroinvertebrates, and improve water quality through sediment and nutrient filtration. Coordination with both the Manakiki and Green Ridge courses was a priority to ensure minimal disruption to golf play and day to day usage of the facilities.

Manakiki Golf Course before restoration.

Client: Cleveland MetroParks Chagrin River Watershed Partners
Contact: Christina Znidarsic
Senior Watershed Manager Chagrin River Watershed Partners
440.975.3870
cznidarsic@crwp.org
Project Type: Stream and Wetland Restoration
Design-Build
Location: Cleveland MetroParks, Wickliffe and Willoughby Hills, Ohio
Timeline: 2016 – 2017

The tributary at Green Ridge Golf Course was restored with a series of in stream grade control structures (rock riffles) to provide a stable channel profile, bed stability, flow direction, energy dissipation, and aquatic habitat. Bank treatments consist of re-grading and installing erosion fabric and seed on the slopes along with trees and shrubs in select areas at the top of slope.

At the Manakiki project site, native riparian vegetation will be restored along an existing rock-lined swale draining into a detention pond, using low growing trees and shrubs (such as dogwoods and willows). Around the perimeter of the pond, a wetland edge or littoral shelf was installed as a component of the proposed stream-wetland complex. This area was planted with herbaceous plant plugs of various wet to mesic sedges, rushes, and forbs.

Construction of the wetland shelf required draw-down of the water surface elevation by approximately two feet. The perimeter of the wetland shelf was reinforced with a coir log toe, and the interior of the shelf was backfilled using sediments excavated from the pond bed to create a pilot channel that meanders north, from the rock-lined inlet swale to the concrete riser outlet structure.





Humboldt Blvd Bluff Stabilization

Milwaukee River Greenway Corridor



There were two main goals for this design-build project with River Revitalization Foundation: To stabilize a ravine washout from an extreme storm event that occurred in 2010 and to provide access for recreational users along an adjacent river trail. We achieved these goals by designing and installing a grouted rip-rap treatment to the ravine, a natural stone stairway, connection paths, and modifications to the existing trail.

It was critical for our client expectations that we revegetate the site to allow it to blend back into the overall Milwaukee River Greenway Corridor. This required some creativity to design a stable solution to the ravine blowout.

AES solved the stabilization issue by incorporating heavy rip-rap, engineered soil, compost, various erosion control matting, geotextile fabrics, and native seed and plants into what is known as 'grouted rip-rap'. Soil was infused into the rip-rap in layers, first, through careful placement of soil into the void spaces of the rip-rap, and second, by

topdressing the ravine with layers of compost so that just the tops of the stone were exposed. Unlike other slope stabilization techniques using heavy rip-rap, this solution allows for complete ravine stabilization while also allowing for growth and establishment of new native vegetation.

As part of the design, the upstream hydrology was evaluated to design the rest of the system. The primary stormwater flows that created the gully blowout are from upstream residential and industrial runoff that overwhelms the existing stormwater system during high flow storm events. The overflow to the exiting storm sewer was modified by changing the elevation and incorporating a 2,500 SF rain garden/bioswale at the top of the slope.

The stormwater inlet was capped with a beehive grate to capture overflow during larger storm events. The second part of the overflow structure is a spillway channel, graded to be used when storm sewer pipe gets overtopped. The bioswale at the top of the slope also included native plants and seeding. Installation of education signage was included to tell the story to visitors to the site.

With the success of the native planting, we anticipate this site will become a focal point for the overall Milwaukee River Greenway which runs along the Milwaukee River from downtown Milwaukee to the northern reaches of Milwaukee County. In the short period of time since we have reopened the trails, we have noticed a significant increase in site use and expect to see this trend continue as River Revitalization Foundation works to connect more trail systems along this river corridor.

Client: River Revitalization Foundation
Owner: Milwaukee County Parks
Contact: Aaron Zeleske, Milwaukee River
Greenway Director
414.271.8000
azeleske@riverrevitalizationfoundation.org
Project Type: Bluff Stabilization
Location: Humboldt and Capital Drive,
Milwaukee WI
Project Size: 0.5 Acres
Timeline: 2017



Project Information:

Project Name: Humboldt Boulevard Bluff Stabilization

Address/City/State/Zip: N Humboldt Boulevard and E Capitol Dr; Milwaukee, WI 53212

Type of green infrastructure installed (check all that apply):

- | | | |
|--|---|--|
| <input type="checkbox"/> Green Roofs | <input type="checkbox"/> Rain Barrels | <input checked="" type="checkbox"/> Rain Gardens |
| <input type="checkbox"/> Constructed Wetlands | <input type="checkbox"/> Cisterns | <input checked="" type="checkbox"/> Soil Amendments |
| <input checked="" type="checkbox"/> Native Landscaping | <input type="checkbox"/> Stormwater Trees | <input checked="" type="checkbox"/> Other, Vegetated Rip-Rap |
| <input type="checkbox"/> Porous Pavement | <input checked="" type="checkbox"/> Bioswales | |

Area of specialty for this project (check all that apply):

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> Design | <input checked="" type="checkbox"/> Landscaping | <input type="checkbox"/> Downspouts and Gutters |
| <input checked="" type="checkbox"/> Engineering | <input checked="" type="checkbox"/> Maintenance | <input type="checkbox"/> Inspection |
| <input checked="" type="checkbox"/> Construction | <input type="checkbox"/> Plumbing | |

Project (Property) Owner Information:

Owner's Name: River Revitalization Foundation

Address/City/State/Zip: [Click here to enter text.](#)

Phone: 414-271-8000

Email: kgleffe@riverrevitalizationfoundation.org

Project Construction Information:

Construction Management Vendor: Applied Ecological Services

Project Manager Name: Tom Tilkens

Project Manager's Vendor history: ☒ currently employed ☐ no longer employed ☐ other [Click here to enter text.](#)

Email: tom.tilkens@appliedeco.com

Contract information (if applicable): [Click here to enter text.](#)

Final Contract Amount (contracted and amended if applicable): \$224,000

Construction Start date (contracted): 3/28/2018

Construction Start date (actual): 3/28/2018

Construction End date (contracted): 6/30/2018

Construction End date (actual): 6/30/2018

Was the project completed on time? ☒ Yes ☐ No; Explanation: [Click here to enter text.](#)

Was the project completed on budget? ☒ Yes ☐ No; Explanation: [Click here to enter text.](#)

Was the project completed to the owner's satisfaction? ☒ Yes ☐ No; Explanation: [Click here to enter text.](#)

Project Description (Be sure to include cost information, photos, and a detailed description of the work performed by the Vendor applicant):

There were two main goals for this design-build project with River Revitalization Foundation: To stabilize a ravine washout from an extreme storm event that occurred in 2010 and to provide access for recreational users along an adjacent river trail.

We achieved these goals by designing and installing a grouted rip-rap treatment to the ravine, a natural stone stairway, connection paths, and modifications to the existing trail. It was critical for our client expectations that we revegetate the site to allow it to blend back into the overall Milwaukee River Greenway Corridor. This required some

creativity to design a stable solution to the ravine blowout.

AES solved the stabilization issue by incorporating heavy rip-rap, engineered soil, compost, various erosion control matting, geotextile fabrics, and native seed and plants into what is known as 'grouted rip-rap'. Soil was infused into the rip-rap in layers, first, through careful placement of soil into the void spaces of the rip-rap, and second, by topdressing the ravine with layers of compost so that just the tops of the stone were exposed. Unlike other slope stabilization techniques using heavy rip-rap, this solution allows for complete ravine stabilization while also allowing for growth and establishment of new native vegetation.

As part of the design, the upstream hydrology was evaluated to design the rest of the system. The primary stormwater flows that created the gully blowout are from upstream residential and industrial runoff that overwhelms the existing stormwater system during high flow storm events. The overflow to the exiting storm sewer was modified by changing the elevation and incorporating a 2,500 SF rain garden/bioswale at the top of the slope.

The stormwater inlet was capped with a beehive grate to capture overflow during larger storm events. The second part of the overflow structure is a spillway channel, graded to be used when storm sewer pipe gets overtopped. The bioswale at the top of the slope also included native plants and seeding. Installation of education signage was included to tell the story to visitors to the site.

With the success of the native planting, we anticipate this site will become a focal point for the overall Milwaukee River Greenway which runs along the Milwaukee River from downtown Milwaukee to the northern reaches of Milwaukee County. In the short period of time since we have reopened the trails, we have noticed a significant increase in site use and expect to see this trend continue as River Revitalization Foundation works to connect more trail systems along this river corridor.



Riverboat Road Streambank Restoration



The River Revitalization Foundation, a prominent Milwaukee non-profit conservation organization, acquired a significant property along the Milwaukee River with important connections both recreationally and ecologically. The property had been neglected and degraded over the years and was in need of ecological restoration.

The Foundation decided a design/build process would be most expedient and hired Applied Ecological Services to design the site and construct the improvements.

Site elements designed and constructed by AES included a naturalized shoreline complete with root wads, native vegetation, and a “backwater” habitat zone that was designed to fluctuate with the seiche effect of Lake Michigan. AES designed and installed two rain gardens, including one that

captures water from the parking lot then directs excess water over a rocky terrace, under a trail, and through a stone runnel and then to the river.

The design featured a handicapped accessible trail system that connects the northern end of the Milwaukee Riverwalk system to the southern end of the Milwaukee Greenway trail system while also providing access to the river itself and includes a scenic overlook with surfacing and bench seating.

The project site, which now serves as the Foundation’s headquarters, is located near downtown Milwaukee, in the Lower Milwaukee River (within the Area of Concern boundary) in a dynamic seiche-driven freshwater estuary. Habitat for fish (northern pike are a target species), amphibians, birds and reptiles within the river corridor is at a premium, particularly in this urban setting.

Client: River Revitalization Foundation
Contact: Kimberly Gleffe
Executive Director
414.271.8000
kgleffe@riverrevitalizationfoundation.org
Project Type: Design-Build Streambank Restoration
Location: Milwaukee, WI
Project Size: 2 Acres
Timeline: 2013 – 2015





Riverboat Road Streambank Restoration *(continued)*



The village has several areas adjacent to the I-94 highway currently maintained as turfgrass. AES provided consultation to develop 1/2 an acre of mown grass to native prairie vegetation at the Lake and Laramie Avenue intersection. Working with the existing trees to be preserved, a planting design has been developed to plan for initial and long term maintenance including prescribed burning of the site.

The site will be seeded with a high diversity low-growing native mix that includes species supporting pollinators and providing color and textural interest. A wide turf border at the curbs provides clear vehicular sight lines and access for maintenance. Large, undulating curves add interest along the perimeter with pockets of supplemental plugs in a few key areas to increase early color impact.



Village outreach and educational opportunities are available with volunteer involvement to install native plant plugs. This precedent turf to prairie project will serve to be another important pocket within the region's green space fabric and Wilmette Green Initiatives.



Project Information:

Project Name: Riverboat Road Streambank Restoration

Address/City/State/Zip: 2134 N Riverboat Rd, Milwaukee, WI 53212

Type of green infrastructure installed (check all that apply):

- | | | |
|--|--|--|
| <input type="checkbox"/> Green Roofs | <input checked="" type="checkbox"/> Rain Barrels | <input checked="" type="checkbox"/> Rain Gardens |
| <input checked="" type="checkbox"/> Constructed Wetlands | <input type="checkbox"/> Cisterns | <input checked="" type="checkbox"/> Soil Amendments |
| <input checked="" type="checkbox"/> Native Landscaping | <input checked="" type="checkbox"/> Stormwater Trees | <input type="checkbox"/> Other, Click or tap here to enter text. |
| <input type="checkbox"/> Porous Pavement | <input checked="" type="checkbox"/> Bioswales | |

Area of specialty for this project (check all that apply):

- ☒ Design
- ☒ Engineering
- ☒ Construction
- ☒ Landscaping
- ☒ Maintenance
- ☐ Plumbing
- ☐ Downspouts and Gutters
- ☐ Inspection

Project (Property) Owner Information:**Owner's Name:** Kimberly Gleffe**Address/City/State/Zip:** 2134 N Riverboat Rd, Milwaukee, WI 53212**Phone:** (414)271-8000**Email:** kgleffe@riverrevitalizationfoundation.org**Project Construction Information:****Construction Management Vendor:** Applied Ecological Services**Project Manager Name:** Cole Clayton**Project Manager's Vendor history:** ☒ currently employed ☐ no longer employed ☐ other [Click here to enter text.](#)**Email:** cole.clayton@appliedeco.com**Contract information (if applicable):** \$250,000**Final Contract Amount (contracted and amended if applicable):** [Click here to enter text.](#)**Construction Start date (contracted):** 8/25/2013**Construction Start date (actual):** 8/25/2013**Construction End date (contracted):** 12/31/2013**Construction End date (actual):** 12/20/2021**Was the project completed on time?** ☒ Yes ☐ No; Explanation: [Click here to enter text.](#)**Was the project completed on budget?** ☒ Yes ☐ No; Explanation: [Click here to enter text.](#)**Was the project completed to the owner's satisfaction?** ☒ Yes ☐ No; Explanation: [Click here to enter text.](#)**Project Description (Be sure to include cost information, photos, and a detailed description of the work performed by the Vendor applicant):**

The River Revitalization Foundation, a prominent Milwaukee non-profit conservation organization, acquired a significant property along the Milwaukee River with important connections both recreationally and ecologically. The property had been neglected and degraded over the years and needed rehabilitation and restoration. The Foundation decided a design/build process would be most expedient and hired Applied Ecological Services to design the site and construct the improvements. Site elements designed and constructed by AES included a naturalized shoreline complete with root wads, native vegetation, and a "backwater" habitat zone that was designed to fluctuate with the seiche effect of Lake Michigan. AES designed and installed two rain gardens, including one that captures water from the parking lot then directs excess water over a rocky terrace, under a trail, and through a stone runnel and then to the river. The design featured a handicapped accessible trail system that connects the northern end of the Milwaukee Riverwalk system to the southern end of the Milwaukee Greenway trail system while also providing access to the river itself and includes a scenic overlook with surfacing and bench seating.

Service Approach

Please provide a description of your firm's customer service approach. This section should give the reviewer a good idea of how conflicts with clients are resolved or how issues that arise during work are resolved. Please provide your customer service approach and at least one example of how your firm has implemented this approach.

For this high-profile site, RRF had an ambitious list of goals: Naturalize and stabilize the streambank with native vegetation to reduce non-point pollution loading to the river. Remove artificial structures (iron and concrete) and re-grade a steep eroding slope to improve water quality and stormwater management. Improve the riparian habitat for fish and wildlife. Contribute to delisting of the beneficial use impairments (BUIs) in the Milwaukee Estuary Area of Concern (AOC) related to fish and wildlife. AES led a skilled team of scientists, engineers and contractors in executing design-build strategies by: Managing the process, design and delivery of concept plans, Drafting construction documents, Submitting state and federal permits, Establishing pre-construction erosion controls, which included preparation of a Stormwater Pollution Prevention Plan (SWPPP), Performing earthwork including invasive species removal, cut-fill, and re-grading and terracing the slope, Stabilizing the riverbank, Installing native vegetation, and Maintaining the site for three years post-construction. This was all performed from a concept plan and a vision with just one season to generate the design, permitting, come up with an approach for contaminated infill, stormwater, earthwork, trail system, bioswale, kayak livery, yoga pad, tree planting, prairie seeding and native landscaping to final construction. Concurrently, while constructing the project, AES was also asked to assist the Wisconsin Department of Natural Resources' (WDNR) Fisheries Department in creating a unique fish spawning reef project immediately adjacent to the site just below the former North Avenue Dam removal site. AES provided installation and oversight of the reef project, which is anticipated to provide critical habitat for lake sturgeon, walleye and other native fish.



Washington Avenue Pier EcoPark

Restoring Philadelphia's Ellis Island



Washington Avenue Pier

Client: Delaware River Waterfront Corp.
Contact: Joseph Forkin, Director
215.629.3200
Project Type: Design, Permitting, T&E Surveys,
Construction, Monitoring, Reporting,
Maintenance
Location: Philadelphia, PA
Timeline: 2012 – Ongoing



Washington Avenue Pier (previously Pier 53) holds significant historical value to the City of Philadelphia. Dubbed Philadelphia's "Ellis Island," the pier was once a major immigration processing port. Over time, however, wave action and dilapidated barrier walls resulted in loss of nearly half the pier's mass.

Non-profit Delaware River Waterfront Corporation commissioned AES to restore the degraded waterfront pier into a public amenity eco-park. AES' restoration design optimized wildlife habitat, enhanced ecological functions, and provided environmental, historical, and cultural opportunities for visitors. The design/build project enhanced the intertidal zone, mesic woodland, and shortgrass prairie areas of the pier and its surrounding parkland.

As part of the restoration efforts, the team:

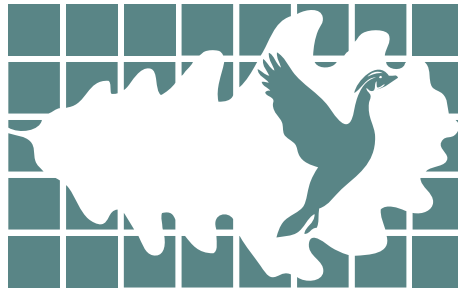
- designed the site restoration plan, including re-grading and planting plans and trail layout
- permitted the design and maintenance/monitoring plan
- conducted surveys for threatened/endangered faunal and floral species
- installed the native species plantings, including 11,600 perennial plugs, 120 trees, 680 shrubs, and 950 live stakes
- stabilized riverbanks by constructing 1,316 linear feet of fabric encapsulated soil lifts, reinforced with heavy-duty Geogrid material, to withstand the rough tidal movements and ice flows of the Delaware River
- conducted annual monitoring and regulatory reporting
- conducted annual maintenance of native vegetation communities by controlling invasive species, pruning trees, and weeding high-visibility areas.

As a diverse wildlife refugia in a built landscape, the restored site provides habitat for valuable and rare birds, fish, and wildlife, from migratory songbirds to PA state-threatened eastern redbelly turtle and federally endangered shortnose and Atlantic sturgeons.

The project has received praise from city officials, environmental organizations and Philadelphia media, with Mayor Michael Nutter calling Washington Avenue Pier "a symbol of Philadelphia's resurgence."



About AES



APPLIED ECOLOGICAL SERVICES, INC.

VISION

To bring the science of ecology to all land-use decisions.

MISSION

To create ecologically-driven land-use solutions that are practical, economical and based on the best science and technology.



About AES



"A thing is right when it tends to preserve
the integrity, stability and beauty of the
biotic community. It is wrong when it tends
otherwise."

Ecologist and AES Inspiration,
Aldo Leopold

Applied Ecological Services is one of the leading ecological consulting, design and restoration contracting firms in the world, dedicated to bringing the science of ecology to land-use decisions.

AES applies science to provide practical land-use solutions that strike the most favorable balance between ecological sustainability, economic viability and community priorities.

Our knowledge of ecological systems provides a solid foundation for implementing balanced ecological designs and solutions that are sustainable, cost-effective and enduring.

AES was established in 1978 by founder Steven I. Apfelbaum, who has built a reputation as one of the country's leading ecologists. Apfelbaum's earliest projects were groundbreaking remediation projects

for which he designed reclamation plans and invented new techniques for implementation. Because no source existed for native seed and plants, he collected native grass and forb seed in the wild to establish a nursery that was capable of producing vegetation materials to accomplish his reclamation plans.

Today, AES has grown into one of the nation's most respected ecological services companies, with a staff of 170 and offices in Wisconsin, Illinois, Indiana, Iowa, Kansas, Minnesota, Ohio, Pennsylvania, and New York. Consulting and design services work in collaboration with our experienced restoration contractors – playing a key role in implementing on-the-ground ecological projects. These two teams are backed by our nursery – Taylor Creek Restoration Nurseries – one of the largest, most diverse native seed and plant nurseries in the U.S.

This unique combination of in-house staff experience—bringing together ecology, landscape design and planning, GIS mapping and data management, aerial imaging and remote sensing, restoration contracting and nursery science—provides innovation, flexibility, streamlined project management and most importantly, projects that exceed client, stakeholder and regulatory objectives.



AES Philosophy



AES was founded on the principles of establishing self-regulating, sustainable ecosystems. Our early mine reclamation projects are sustainable today, 40 years later. Our conservation designs and Stormwater Treatment Train™ are being emulated throughout the U.S. Our latest research on regrowing soil carbon and using wetlands for power plant cooling water are some of our sustainability permutations.

At its core, AES is a collection of technical experts who take measurements. We're a science-based firm. We happen to specialize in ecology and natural systems, so that's what we study and measure.

The AES team has extensive experience in watershed assessment, stormwater management, soil health assessment, solar planting design and installation, wetland, riparian and stream restoration design, and GIS processes.

Our experience includes all aspects of assessment, analysis, design, engineering, and construction, on a variety of projects.

We seek to design landscapes with an infusion of serious ecology. AES concepts of eco-functional site design rest not only on the time-honored precepts of landscape architecture but they also draw from the wellspring of ecological science and the Land Ethic espoused by Aldo Leopold. AES realizes that effective watershed management and restoration can have a profound influence on regional water quality improvement. In urban areas, decades of changes in land use, development patterns, and vegetation result in an increase in stormwater runoff and a reduction in water quality. AES takes a holistic approach to solving these issues, assessing watersheds and developing plans using the most appropriate and well-established assessment protocols and data collection technologies.



Consulting Qualifications



CREDIBILITY

Our science sets us apart. It provides the foundation of knowledge that we apply to create innovative designs. And because we have a solid foundation in science, our credibility with agencies, non-profits, and the public is very high. This allows AES to get stakeholders with radically differing agendas to reach consensus, and then allows us to design and execute complex projects.

Typically, our problem-solving work is conducted at the intersection of conflict between people and nature. Our scientific expertise in ecosystem structure and function provides a solid foundation for unifying what are often disparate – sometimes adversarial – approaches to land-use decisions.

COMPLETE SERVICE PACKAGE

AES' Consulting team integrates the disciplines of ecological science, landscape architecture and geospatial services. This interdisciplinary approach is essential to providing sustainable solutions required by complex, dynamic ecological problems. The overarching principle for our consultants is the sustainable cohesion of flora and fauna, land and water that collectively comprise the natural world in which we live. Cohesion, in our view, is also a planning approach that we prefer.

COLLABORATION

On complex assignments, AES consultants frequently work in concert with professional partners who collaborate both philosophically and with specialized expertise. We have been privileged to team with some of the most talented designers and planners to work on some of the most challenging and innovative projects on the planet.



Ecological Restoration Contracting

Qualifications



AES has been restoring and managing native ecosystems for more than 40 years. We perform only ecological contracting and restoration. We pride ourselves on having the determination, passion and creativity to produce successful projects at any scale, all while maintaining a safety-focused culture.

DEDICATION TO OUR CRAFT

“Ecological Restoration” is a general term that encompasses many different techniques and approaches aimed at restoring ecological health to the land. Often, these techniques and approaches have to be customized and adapted to unique circumstances.

We have learned these specialized techniques over many years and hundreds of projects. Knowledge from previous projects informs processes during project implementation at all levels including at the crew level. AES strives to hire and retain crew members who are trained in natural resources management or related fields, and who are passionate about ecological restoration and land stewardship.

OUR QUALIFICATIONS

- Over 40 years of ecological restoration and reclamation experience
- Well-educated crew leaders with B.S. or M.S. degrees
- Practical techniques, materials, equipment, job planning and cost controls
- High quality standards and company-wide focus on safety
- Timely project implementation
- Valuable design and engineering input
- Cost-saving design-build capabilities
- Strong, long-term working partnerships with national earth-moving contractors
- Specialized field crews supported with expert technical support from project ecologists and landscape designers
- Supplied with native seed and plant materials from Taylor Creek Restoration Nurseries, our 400-acre prairie and wetland nursery





Taylor Creek Restoration Nurseries

Products and Services



With over four decades of experience in growing native plants, Taylor Creek Restoration Nurseries (TCRN) is a leader in native plant propagation. TCRN's production facilities in southern Wisconsin and eastern Kansas supply the entire Midwest and beyond.

We love sharing our passion for native plants, and the ecosystems they are an integral part of, by offering the highest-quality native, local-genotype seed and plants as well as the expertise to use and care for them. Education is an important part of TCRN's mission, and our restoration nurseries educate and support our clients and the public at large in their land-use decisions.

Although our nursery carries a range of genotypes from many parts of the U.S., it is TCRN's general practice to produce seed and plants from the region of our nurseries.

We track origins diligently and carry more than one genotype. Our plants are nursery-grown; it is not our practice to wild-collect live plants. TCRN's local genotype seed is nursery-grown in beds started from seeds collected ethically on native remnants.

In service to our commitment to protect existing remnant plant populations, TCRN provides ecological management including invasive species control for collection sites to ensure remnants remain healthy and viable. We also specialize in local genotypes and are happy to work with customers for specific origin needs.





Comprehensive Services



CONSULTING

Design - Research - Regulatory

- Ecological Restoration Design, Planning, and Management
- Ecological Research, Assessment, Inventory, Analysis, and Monitoring
- Mine, Quarry and Landfill/Brownfield Remediation Planning
- Site and Regional Master Planning
- Environmental and Water Resources Engineering
- Ecological Landscape Architecture
- Geospatial Services: GIS and Remote Sensing
- Aerial Image Acquisition
- Regulatory Permitting
- Soil Health Research, Assessment, Inventory, Analysis, and Monitoring
- Public Process and Visioning
- Comprehensive Wetland Services
- Wildlife Studies and Management
- Solar Farm Seed Mix Planning and Design
- Threatened and Endangered Species Studies
- Streambank and Shoreline Stabilization
- Stormwater Management Design
- Sustainable Development Services
- Environmental Legal Discovery and Mediation

FIELD SERVICES

Construction - Management - Maintenance

- Comprehensive Design-Build Services
- Construction Management
- Restoration and Phytoremediation Planting
- Shoreline, Streambank, and Slope Stabilization
- Native Landscape Installation
- Prescribed Burning
- Prescribed Herbicide Application
- Solar Farm Construction Oversight and Monitoring

RESTORATION NURSERIES

Seeds & Plants - Research - Expertise

- Native Plants, Seed, Trees, and Shrubs
- Specific Genetic Provision
- Propagation of Locally Sourced Seed and Plants
- Custom and Contract Grow
- Experimental Propagation
- Nursery Consulting
- Nursery Design-Build
- Seed Mix Planning and Seeding Design
- Re-Vegetation from Planning through Installation and Maintenance



Our Locations

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(847) 844-9385

Huntley
(608) 214-2360

Lockport
(815) 919-1400

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(815) 760-0184

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