TUTHILL CORPORATE HEADQUARTERS CAMPUS

PILOT SCORECARD
SECTION TOTALS
1 Site Selection........................................6/21
2 Pre-Design Assessment + Planning.4/4
3 Water....................................................34/44
4 Soil + Vegetation....................................24/51
5 Materials Selection...............................0/36
6 Human Health + Well Being...............9/32
7 Construction.........................................5/21
8 Operations + Maintenance...................4/23
9 Monitoring + Innovation......................8/22
Pilot Participation Points........................8
TOTAL (out of 250 Points).......................102

SITES Certified Pilot Project

Location: Burr Ridge, Illinois
Project Size: 21 acres
Project Type: Commercial
Site Context: Suburban
Former Land Use: Greenfield
Terrestrial Biome: Temperate Grasslands, Savannas & Shrublands
Budget: $1 million

Project Overview
The Tuthill Corporate Campus is a preeminent example of a workplace environment shaped to express the organization’s core values. Designed and built in the late 1990’s – two years before the U.S. Green Building Council's LEED certification began, and 14 years before SITES certification was available, the Tuthill facility achieves the design and operational excellence that these high-performance building and site standards prescribe. The client, building architect, landscape architect, stormwater engineer, ecologist and contractor utilized an integrative design process. The involvement of all disciplines at the feasibility stage enlightened the decision-making process and provided a framework that guided site use and building placement in a transformative way – recasting site challenges as valuable site amenities. The result is a high-quality workplace setting that honors the human psyche, exceeds programming goals, fulfills the mission of the company, and improves the environment. More than a decade later, the project’s performance outcomes still serve as a model for smart and responsible development.
Regional Context

The corporate headquarters and training facility located just 20 miles outside of Chicago is situated on 12 acres of south-facing gently rolling terrain adjoining a 15-acre pond/wetland complex and a small 2-acre remnant Illinois prairie. The original 1830's General Land Survey notes indicate that the site was dominated by tallgrass prairie, coupled with a grove of native oak and hickory. Historically, the pond’s location had been part of a large minerotrophic bog or sedge meadow complex, but was excavated in the early 20th century to create a farm pond. The site was continually grazed/mowed except for the lowest areas that were too wet and therefore left as uncultivated vegetation. Being connected to a regional stormwater system, the pond ecosystem was subjected to continuous exposure and inundation from polluted, nutrient rich, sediment-laden stormwater runoff which escalated over time. By the time the Tuthill Corporation acquired the land only the very edge of the pond environment exhibited any vestiges of native wetland habitat. Significantly degraded, there was very little species diversity and a preponderance of invasive species, due in large part to unstable hydrology.

SITES Features + Practices

One of the most notable aspects of the project is the water focus. The building is oriented to the pond/wetland with the intention that people would be able to walk along the water’s edge and view it from their work space. Rainwater is an expressed element of the landscape, and is directed from the roof surface to the landscape in a visible, artful fashion. The native landscape, restored or recreated on-site, in
combination with other site strategies, virtually eliminates surface water runoff and minimizes localized flooding. Hardy, indigenous plant species eliminate the need for toxic chemicals in the landscape, and provide habitat for dozens of insects, birds, and animals.

The site’s hydrology has been stabilized, and invasive species removed, allowing the restoration of native grassland prairie and wetland fringe. Grading was kept to a small footprint during construction to maintain soil health and porosity. The entirety of the site, except for the building, pavement, and small Buffalo grass turf edge, has been restored to native landscapes. The site design includes shallow bioswales and raingardens, which in concert with the restored native landscape effectively manage most of the rainfall without surface water runoff. The high quality remnant prairies have been protected and stewarded, and continue to demonstrate ever-greater species diversity. The site is maintained and stewarded by facility staff under the guidance of landscape restoration and stewardship professionals and in accordance with the original maintenance intent. The site is monitored for species diversity, system health, and invasive plant control.

The Tuthill headquarters was one of the first commercial buildings in the region to be designed and built according to green, or sustainable, practices, and pre-dates the LEED system. Building systems are integrated to reduce redundancy and waste, saving approximately 40% of operating costs over a similar conventional building. Every workspace within the building has a strong visual connection to the restored natural landscape. Employees are encouraged to go outside, with centrally located doors providing easy access to terraces and walkways that lead to the boardwalk and trail system. Workers can take a brief outdoor break, sit out on the terrace for lunch or an impromptu meeting, or exercise indoors or out before or after work hours, or during break times. A looping trail system provides access through and around the site bordered by hundreds of species of native trees, shrubs, grasses, and forbs, as well as birds, butterflies, and many other animals.

The process used to design and build the Tuthill corporate campus aligned closely with SITES criteria in three innovative ways: 1) an integrative design process; 2) a pre-design site assessment, and 3) management of precipitation on-site. An integrative design process among the landscape architect, hydrologic engineer and building architect resulted in a synergistic relationship between the building and the site. The knowledge of site systems
guided site layout and enabled restoration of the high-quality remnant prairie, while at the same time added value in terms of the building’s location, orientation, and energy use. The superior ecological solution helped lower construction costs through reduced site grading. The infiltration-based stormwater management approach, in concert with the restored native landscape, effectively manages most rainfall without surface runoff, which in turn lowers management costs and improves biodiversity and overall system health.

Completed in 1999, the project was pioneering in its design and in its long-term maintenance/stewardship program. The alignment of ecological, water, energy, as well as human health and well-being goals was also progressive for that time and especially among the manufacturing businesses. Specific sustainability strategies included: Infiltration-based site hydrology through the use of protection of soil structure, bio-retention, flow spreaders, soil enhancements in disturbed areas, and native prairie landscape re-creation; Ecological landscape restoration and enhancement with aggressive invasive species removal, native seed and live plant plug installation; Long-term maintenance and stewardship with low-input practices including controlled prescribed burning; Connection of indoor/outdoor environments through integrative planning and site design to provide physical and visual access to nature; Rainwater management facilities as amenities- artful expression of water in the landscape as a design feature, minimal use of underground pipes for conveyance.

Many of the permeable pavement and green roof products we use today were not available 15 years ago when the project was done. Underdrains and the flow spreader installed to help slow, cool, cleanse, and infiltrate rainwater uphill of the wetland pond were made with standard perforated plastic pipe – a fairly low-cost method to maximize infiltration with overflow from rooftop and pavement surfaces.

Locally sourced limestone was used the terrace and patio adjacent to the building to create an authentic connection to the local landscape. Local eco-type seed, live plant plugs, and woody trees and shrubs were sourced from area stocks to the degree available to support landscape system health and biodiversity.

**Process**

The client began working with the architect to prepare design concepts for the proposed building as part of a feasibility study conducted prior to the land purchase. The initial plan was to position the building and parking lot to the west of the pond in an upland area where the high-quality remnant prairie was located – but which the owner and architect were unaware of at the time. Once the land purchase moved forward and planning commenced the design team expanded to include specialized landscape architecture, engineering and ecological professionals. These perspectives, with a more thorough understanding of the site and natural systems, brought issues and opportunities to the forefront and initiated a new integrative process for problem solving and design.

To accommodate an infiltration-based stormwater engineering approach and preserve the remnant prairie, the best solution was to position the building on the north side of the pond, between the water and the north property line. This placed the building and paved surfaces within the most degraded portions of the site and immediately uphill from the wetland. The dynamic, integrative design approach fostered a unilateral exchange of ideas that allowed the site development program to rise to the level of being ecologically restorative, rather than merely minimizing impact. Other benefits of the revised
building location provided optimal southern exposure, created long open views across the pond, and required a shorter driveway with significantly less pavement.

The location of the building also made it economically advantageous to work better with the site grades and locate a portion of the parking underneath the building, further reducing impervious surface, construction costs, and providing an amenity that would have otherwise exceeded the budget. The sheltered parking returned value to the company and its employees.

This approach did require construction of a portion of the building within 100 feet of the delineated wetland. The local environmental regulator (DuPage County Department of the Environment) stipulated a 50’ buffer (permanent) and allowed grading up to the wetland boundary. However, removal of existing vegetation, even invasive species, within the regulated wetlands was not permitted. Ecologists explained that the overall health of the ecosystem and stabilization of hydrology depended upon the removal of the invasive shrubs, and the establishment of deep-rooted native grasses. Meetings with members of the jurisdiction were conducted to discuss this point, and ultimately, permission was granted to do ecological restoration within the buffer area and the wetland itself.

The dramatic improvement of the site’s biodiversity and ecological richness is a net result of the integrated site development approach.
**Maintenance + Stewardship**

The landscape architect initiated discussions with the client upfront regarding the site’s character and value, and to explain the cause-and-effect relationship between the long-term health and beauty of the site and active, on-going management and stewardship activities. The site design team, including the landscape architects, ecologists, hydrologists, and others, worked to outline and gain acceptance of the overall maintenance approach, and ensure that the client would be willing to support and fund these activities as part of their annual budget into the future. As the corporate headquarters of a successful 100-year old company poised for growth, the pioneering design approach is closely identified with the company brand, which provides an incentive for its guardianship. The client continues to be sensitive to and appreciative of the native landscape that they chose to salvage and protect, making an ongoing commitment to professional stewardship services according to the maintenance practices outlined in the SITES Maintenance Plan Worksheet.

The project was planned and completed nearly 15 years ago (1999) and is largely maintained by a contractor specializing in ecological landscape practices in support of on-site facilities staff. Maintenance includes typical debris clean-up, selective pruning, on-going control of invasive weedy species, and controlled burning.

During the planning and design stage of the project, there was a great deal of discussion relative to the long-term maintenance and management implications of a restored and in some cases re-created native landscape, and the types of maintenance activities that would be necessary to protect and restore the intact remnant prairie, to re-new and restore the degraded wetland areas, and to re-establish native vegetation on the rest of the site.

One of the critical practices essential to the success and ecological stability of native landscapes systems in the region is annual controlled burning, replicating the ancient cultural practices performed by the native people prior to Western settlement. This emerging practice is now becoming more familiar and widely used in the Chicago region and elsewhere, but at the time this project was started in 1998, it was somewhat controversial, not well understood, and not permitted in Burr Ridge where the project is located. A substantial part of the development of the site design and landscape plan included the eventual approval and acceptance of controlled burning as part of the maintenance protocol by both the client and the municipality.

Many public agencies throughout the region point to this project as an example of adapting native landscapes to formerly degraded sites elevating the use of the property and adding value to the land and surrounding communities. The continuing vitality and beauty of this prairie and wetland landscape has helped to establish a positive perception of native landscapes as being good neighbors in/for the community. It provides ongoing evidence that supports the benefits/effectiveness of green infrastructure and sustainable design, and remains as one of the more successful examples in the country of a high-quality native landscape as a corporate office/workplace setting.

The Tuthill Corporation continues to demonstrate its commitment to a Conscious Company way of thinking, which includes proactive support of environmental sustainability. To that end, the company utilizes the services of qualified landscape restoration and management professionals to monitor and maintain the site according to the prescribed protocols for system health. With the native landscape fully
established by 2008 and into long-term stewardship, the client commissioned a follow-up assessment by Conservation Design Forum ecologists in order to evaluate and further refine ongoing maintenance protocols and operations. Achieving SITES certification is an additional motivator to continue active monitoring of particular site elements.

**Site Challenges**

After small-scale agricultural operations ceased, the former farmstead and pasture land was abandoned for several decades. Non-native plants overtook the fallow fields and wetlands, especially highly invasive Eurasian honeysuckle, buckthorn, and multi-flora rose that grew in such dense thickets as to create a formidable prickly barrier which made it difficult to walk large portions of the site. Overgrowth of the shrubby invasives caused excessive shading on the ground surface resulting in the decline of indigenous forbs and sedges. The loss of deep-rooted grasses eventually led to unnatural surface water runoff and erosion. The system was in a state of accelerating collapse as evidenced by severely eroding rills and gullies that further diminished native flora and seed banks.

**Project Goals + Successes**

Embracing the philosophy of a Conscience Company, the Tuthill Corporation looked to express the core principles of this operational paradigm in the design and materialization of the company’s new headquarters. Turning the page on a new chapter in the history of American manufacturing, the proposed
office and training facility was conceptualized as an environment that would foster creativity and interaction in an open, day-lit space that is further enhanced with views and access to nature. Building design and site design were integrated – recognizing the impact each decision and feature would have on the company’s identity, the health and productivity of employees, and the environment in which the organization would function.

In order to support those objectives, corporate leadership sought a high-performance building and site approach. Specific sustainable site goals were proposed, including:

1. Identify, protect, and restore high-quality remnant landscapes (small prairie remnant found on-site that was preserved and expanded upon as part of landscape restoration);
2. Restore existing degraded wetlands and woodlands;
3. Minimize grading and soil compaction and restore soil health and vitality;
4. Slow, cool, cleanse, and infiltrate rainwater; mimic or restore natural hydrology to the degree possible;
5. Restore native landscapes to the remainder of the site in support of overall ecology and biodiversity;
6. Employ and adopt long-term landscape maintenance and stewardship to improve biodiversity and systemic health over time;
7. Monitor species diversity, both flora and fauna, as a key indicator of overall site health.

The Tuthill Corporation has used this facility to demonstrate the company’s leading edge green practices, and has sponsored numerous workshops and conferences on-site to allow others to learn from their experience. When asked to be considered as a SITES pilot project, company leadership embraced the opportunity to promote the SITES rating system as a tool towards widespread restorative practices.

With design and construction completed prior to the establishment of SITES certification, participation in SITES did not influence the design and construction. Rather it provided an example of how commercial development could move forward in an ecologically responsible way. The enduring state of the project offers a rare opportunity to evaluate the long-term efficacy of some of the restoration strategies that were employed.

From the client’s perspective, the design of this facility fosters greater creativity and collaboration among company employees and supports staff recruitment and retention. On a municipal level, the project has had a positive impact on other local and regional building projects and continues to be cited as an example of successful ecological restoration in the community and in the commercial development sector. A synchronized effort among the design team that allowed the project to go forth from a site features/ecological perspective preserved the important natural characteristics of the property, increased the value of the property, and motivated other modes of creative problem solving. Adapting the building location and orientation to the site enabled:

- Protection of the high-quality remnant prairie
- Optimal southern exposure for passive solar
- Long, open views across the pond from interior work spaces
- Underground parking and a shorter driveway, resulting in less pavement/impervious surface
• The dramatic improvement of the site’s biodiversity and ecological richness is a net result of the integrated site development approach.

In addition to SITES certification, the project has been recognized by the following:

• U.S. EPA and Chicago Wilderness Native Landscape Award 2007;
• Northern Illinois AIA Award 2002;
• Association of Licensed Architects Merit Award 2002;
• Featured in Sun-Times 1999 and Chicago Tribune 1997

Lessons Learned

The site and its natural and cultural/political context presented a number of challenges – steep, eroded topography and degraded ecosystems, restrictive entitlement and permitting processes governed by outmoded codes and ordinances, as well as typical budget and time constraints. Important lessons learned include an awareness of the need to establish project design as an integrative process and present restorative solutions as locally understandable and embraceable concepts.

The Tuthill Corporate Headquarters is one of Conservation Design Forum’s flagship projects, and has
provided a great opportunity to propose, realize, and monitor a highly ecologically focused building and site in a mainstream corporate office setting. This is one of a number of projects that has helped us to improve an understanding of soil preservation, infiltration-based hydrology, ecological landscape stewardship in a visible, high-profile setting, and the importance of the reconnection between the owner/steward and the site’s innate nature as the basis to sustain the health of both over time.

Project Team

**Owner/Client:** Tuthill Corporation, Burr Ridge, IL
- James G. (Jay) Tuthill, Jr., Owner and Chief Executive Officer
- Dave Groeber, Jr., Facility Manager
- Gus Groeber, Site Superintendent

*Lead consultants, project architects:* Serena Sturm Architects (formerly Prisco Serena Sturm Architects), Chicago, IL
- Marty Serena, AIA- Project Principal
- Bill Sturm, AIA- Principal Designer
- Lynn Boeke (former staff member), Project Manager

*Landscape architects, ecological consultants:* Conservation Design Forum (CDF), Elmhurst, IL
- James Patchett, FASLA- Project Principal, Principal Landscape Architect
- Gerould Wilhelm, PhD- Principal Ecologist
- Chris Niedert (former staff member), CDF project manager- site design/construction oversight
- Linda Masters (former staff member), CDF project coordinator- ecological planning and restoration oversight

*Civil engineers:* EEI- Engineering Enterprises, Inc, Sugar Grove, IL
- Peter Wallers, PE- Project Principal, principal civil engineer
- Chris Lindley, PE- EEI Project Manager

*General Contractors:* Pepper Construction, Chicago, IL
- Bober- Superintenent
- H.F. Vegter Excavating Co., Addison, IL- Site Grading
- J&S Construction, Oswego, IL- Site Utilities
- J. Kapcheck Co., Des Plaines, IL- Stonework
- Johnson Paving, Arlington Heights, IL- Asphalt paving
- N.F. Demolition, Chicago, IL- Demo of existing structures
- Steve Piper & Sons, Naperville, IL- Site Clearing and Grubbing

*Landscape contractors:* Church Landscape (now part of Valley Crest), Lombard, IL
- Howard Levinson (former staff member)- Account Manager

*Ecological landscape management, on-going stewardship:* Conservation Land Stewardship, Elmhurst, IL