

Nature and engineering – a synthesis

Wendi Goldsmith is CEO and founder of Bioengineering Group, the US-based consultancy that specialises in environmental planning and ecological restoration. The Group has over the years been involved in many high-profile projects that have attracted attention owing to their creative approach. Goldsmith is a strong believer in bringing the worlds of ecology and building and construction together. “We should stop thinking in terms of good guys and bad guys and instead team up to achieve results that all parties benefit from.”



Goldsmith founded the Bioengineering Group in 1992 ‘out of conviction’ she says. “I had worked for design and engineering firms, in water management and ecological restoration. I was convinced that those could be brought together with construction and infrastructure engineering to restore previously damaged landscapes. What I saw around me is that on one side of the spectrum you had the good guys who restored everything, and on the other the bad guys who ruined it. Why not bridge that gap, I thought. Why not reach across boundaries and bring various disciplines together.” Bioengineering Group was a one woman business, initially. “Looking back it makes me feel quite proud to see what we’ve achieved here; we’re now a 10

million dollar business. We would never have achieved that without the support of our team, friends and family, but also of our clients who were willing to take a progressive and creative approach to environmental engineering and ecological restoration.”

One of the projects Goldsmith is particularly proud of is the restoration of the shoreline of the Walden Park pond. Henry David Thoreau lived at Walden Pond from July 1845 to September 1847. His experience at Walden provided the material for the book Walden, which is credited with helping to inspire awareness and respect for the natural environment. Because of Thoreau’s legacy, Walden

Pond has been designated a National Historic Landmark and is considered the birthplace of the conservation movement. Now part of the Massachusetts Forests and Parks system, Walden Pond State Reservation includes 462 acres of protected open space so that visitors from near and far may come to experience the pond that inspired Thoreau. In summer the Reservation is a popular swimming destination. In the spring and fall, many people hike the trails that ring the pond and visit the replica of Thoreau’s one-room cabin. “It was a real honour for us to be involved in the restoration of a park that so many Americans have such strong feelings about,” Ms. Goldsmith adds. “We combined natural vegetation



with geotextiles to mimic a natural shoreline while also guaranteeing it would withstand heavy visitor traffic. The whole project underscores our belief in the value of creating a synthesis between nature and engineering.”

Another project that represents the work of Bioengineering Group well in her view is the South Central Connecticut Regional Water Authority’s Water Purification Facility and Park (South Central) serving New Haven, in the state of Connecticut. This facility and park acquired an impressive list of awards recognizing its sustainable design, most recently receiving an American Society of Landscape

Architects (Washington, D.C.) 2010 General Design Honour Award. The green crown jewel of South Central is a 2600-m² (28,000-ft²) ‘green’ roof — the first at a water purification facility and the largest in Connecticut — designed to last more than 50 years. The roof is constructed of plants to reduce runoff and reduce the heat-island effect. In 1999 when the project kicked off, there were only two other green roofs in the country. “It was an interesting project because the water authority needed to continue to run the site as an industrial facility for water purification, but the surrounding land was used as a park by the neighbours,” Ms. Goldsmith explains. “They wanted to stick with that combination of industrial and leisure issue and we helped them to achieve that. It was quite controversial as this was before sustainability became a real issue in the US. But now the neighbourhood really loves it and the project has come to serve as a great example for other projects that have to find a way of combining two at first glance conflicting uses of public space in an ecologically sound manner.”

Bioengineering Group has continued to make headlines since finalising those two projects. In 2007 the company teamed up with Dutch-based consultancy Arcadis to together start one of the first post-Katrina projects in the New Orleans District. They formed a

team on the basis of their strong collaborative relationship, says Ms. Goldsmith. “Compared to Arcadis we’re a small company so it’s great to see that they believe we have compatible strengths. They realised that while they could design what I like to call the hard measures, in other words the physical, engineered protection, the area in the longer term would also need to preserve its wetlands to get an ecologically healthy climate with nature also playing its part in protecting the residential areas from flooding. And that’s where our expertise comes in.”

Overall Ms. Goldsmith remains a strong believer in a cross-disciplinary approach. “It would be great if even more people looked at the impact of engineering, building and construction on the environment. This isn’t ‘just’ an environmental issue.; there are multiple benefits. Nature is a far better multi-tasker than engineered systems!”



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