

St. Charles Wetland Mitigation Bank

By Thomas McArdle and Jedd Anderson

With the release of the U.S. Federal Guidance on mitigation banking this spring, the regulatory doors are open to increased mitigation banking efforts. Some Great Lakes States have already initiated wetland mitigation banking programs, and more are considering them. In this article, the authors present information on the formation of the St. Charles Wetland Mitigation Bank in Illinois.

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St. Charles Mitigation Bank from the observation area.

Wetland mitigation efforts are often in response to a variety of federal, state and local regulatory programs established to control and adequately compensate for potential adverse environmental impacts resulting from land development activities. In urban settings, these activities can lead to the fragmentation of the landscape with mitigation areas confined within industrial or residential boundaries rather than natural settings. In many instances, wetland mitigation areas become isolated pods of an inadequate size to effectively provide the functions and values typically associated with larger contiguous wetland complexes. Often, mitigation areas provide primarily storm water storage capabilities with other functions and values lacking. To counter this trend, Land and Water Resources, Inc. (LAWR), in cooperation with Christopher B. Burke Engineering, Ltd. (CBBEL), Applied Ecological Services, Inc. (AES) and the St. Charles Park District initiated, and successfully completed, the St. Charles Wetland Mitigation Bank. This is the first privately owned, permitted wetland mitigation bank fully constructed in the United States.

St. Charles, Illinois is a community of approximately 12 square miles with a population of roughly 25,000 residents. The village is located along the Fox River in Charles Township of Kane County and is approximately 45 miles from downtown Chicago. St. Charles Township is composed of primarily farming residential, and commercial land uses and lies in a watershed experiencing rapid urban growth. As a result of these growing urban pressures, wetland impacts and the subsequent need for suitable mitigation areas have increased dramatically. In response to the need for wetland mitigation areas, and the increased awareness of regulatory agencies regarding the benefits of mitigation banking, LAWR identified an area along the Otter Creek tributary with excellent mitigation potential.

In 1992, at the beginning of the project, the 52 acre mitigation site was under cultivation and owned by the St. Charles Park District, which was interested in preserving open space and creating a passive recreational area with natural amenities in the region. The site contains a portion of the Otter Creek channel with associated flood-plain covering 90 percent of the parcel. An extensive drainage tile

network existed on-site and effectively drained the site for farming. The majority of the site was underlain with Otter Silt Loam which is a hydric soil commonly associated with floodplain areas of Kane County, Illinois. Based on the existing site conditions, it appeared that the site was historically jurisdictional wetland prior to cultivation and likely contained an existing seed bank. It was the belief of project personnel that a successful mitigation bank could be developed by removing the existing field tiles to restore natural wetland hydrology and creating a variety of community habitats through the partial excavation of farm fields, and the supplemental planting of higher quality wetland vegetation.

The responsibilities for the creation of the mitigation bank started with the St. Charles District providing a conceptual development plan for the site with LAWR assuming the responsibility for the site development construction activities and the marketing of the mitigation credits. As the result of this agreement, each primary party would receive a portion of proceeds from the sale of mitigation credits to developers in the Fox River watershed. To assist in the project development, Christopher B. Burke Engineering, Ltd. and Applied Ecological Services, Inc., were subcontracted to design the wetland mitigation plan and provide maintenance and monitoring services to assure the successful completion of the project.

The project goals and objectives were formulated as follows:

1. The restoration and creation of a wetland natural area, including a parking area, interpretative trails and a bridge over Otter Creek, for use in educational activities and passive recreation.
2. The creation of a variety of wetland community zones as habitat for various species of regional flora and fauna including threatened and endangered species.
3. The creation of wetland capable of filtering and removing suspended sediment and other pollutants.
4. The restoration, enhancement, and protection in perpetuity of open space which was riverine wetland habitat prior to cultivation.
5. The enhancement and bank stabilization of a portion of the degraded channel of Otter Creek.
6. The creation of a passive storm water retention and recharge area where water infiltration and subsequent discharge is slowed, thus increasing the storage capacity in the Fox River watershed.

However, in order to use the bank to satisfy Section 404 requirements, a set of guidelines was required to adequately address issues regarding the planning, construction, sale of credits, longer term maintenance, and financial obligation of prospective mitigation bank sponsors. For this reason, the Home Builders Association of Greater Chicago drafted a set of guidelines that, after numerous discussions and revisions, eventually led to the development of the Interagency Coordination Agreement (ICA) on Wetland Mitigation Banking within the Regulatory Boundaries of Chicago District, Corps of Engineers. This cooperative agreement between the U.S. Army Corps of Engineers (USCOE), the U.S. Environmental Protection Agency (USEPA), and U.S. Fish and Wildlife Service (USFWS), signed on March 17, 1994, provided guidelines and agency support for the establishment of wetland mitigation banks in northeastern Illinois.

The ICA is clear in defining that mitigation banks can serve to mitigate for unavoidable wetland impacts and that normal regulatory review procedures will determine eligibility for use of mitigation credits. Guidelines require that proposals to utilize mitigation bank credits show an attempt to avoid and minimize wetland impacts. They also should affect areas of small acreage with lower quality habitat values, provide on-site mitigation where appropriate and locate mitigation within the same watershed. Specifically, wetland banking credits will not be considered suitable mitigation for wetland impacts involving habitat for threatened or endangered species, important breeding and foraging grounds for wetland-dependent wildlife, areas of high plant species diversity, Illinois Natural Areas or wetland identified in the COE/USEPA Advanced Identification (ADID) process.

In addition, the ICA identifies criteria for the evaluation of proposed bank sites and development plans including site selection, bank ownership, prospectus development, planning, necessary permits, performance bonds, and operation procedures. The establishment and certification of bank credits was of particular concern to the project personnel of the St. Charles Mitigation Bank.

Upon completion of debate and numerous discussions, it was agreed that three types of bank credits could be sold during differing stages of the mitigation bank development. These three types of bank credits included uncertified credits, conditionally certified credits, and certified credits. Mitigation bank sponsors were granted the ability to sell up to 30 percent of uncertified bank credits at the time of bank approval. Additional credits were to be sold in stages as the USCOE accepted site hydrology and planting conditions. The final thirty percent of credits could be sold upon conditional certification of the bank.

Conditional certification of the bank is possible after two full growing seasons based on reasonable progress toward meeting performance standards specified in the IC, including the successful establishment of at least seventy percent of all proposed planted species in each community zone. In addition, ratios were established for the sale of uncertified and conditional credits, within and outside of the watershed. These ratios were established at increased levels because the bank had not achieved the status of final acceptance. Uncertified and conditional credits must be acquired at a 1.5:1 ratio for wetland impacts within the same watershed while a 3:1 ratio is required for impacts outside the same watershed. Fully certified credits, available at a 1:1 ratio in the same watershed, could be approved after performance standards have been met as determined by USCOE.

The proposed mitigation bank plan, as developed by CBBEL and AES, and revised during the U.S. Army Corps of Engineers permit process, established guidelines for the creation of 48 acres of restored native communities. This area of restoration included 16.17 acres of jurisdictional wetland suitable for sale as mitigation credits. The total wetland acreage included 2.0 acres of riparian wetland, 4.0 acres of emergent wetlands, 18.7 acres of wet prairie, and 11.4 acres of wet mesic prairie. Partial mitigation credit was given for 11.9 acres of upland mesic prairie buffer as based on the distance from the wetland zone. It was determined that fifty percent credit would be given for acreage of mesic prairie within 100 feet of the wetland while twenty-five percent would be granted for acreage outside 100 feet.

Additional activities included the partial grubbing and clearing of the area adjacent to Otter Creek as part of enhancement and bank stabilization efforts. They also included the construction of a crushed limestone gravel parking lot and observation area, approximately one mile of interpretative trails and a pedestrian bridge linking the mitigation area to additional public open space to the west of Otter Creek.

The proposed planting list specified a variety of seeds, tubers, and plugs for emergent zones and seeding mixtures for wet prairie, wet mesic prairie, and mesic prairie. Site preparation activities included placement of a suitable depth of topsoil, an evaluation of soil compaction, removal of large accumulated debris, and herbicide application to eradicate existing undesirable vegetation in the upland mesic prairie zone. Post planting activities included the placement of erosion control mulch and monitoring.

The joint permit application was submitted to the USCOE, USEPA, USFWS, Illinois Department of Transportation (IDOT), Illinois Environmental Protection Agency (IEPA), Illinois Department of Conservation (IDOC), Illinois Historic Preservation Agency (IHPA), and Kane County, Illinois on July 21, 1993. Upon reviews, favorable determinations were received from a majority of regulatory

agencies within several months of submittal, however, the USCOE determined that the scope and extent of the proposed activities warranted review under the Individual Permit process. Public Notice was issued regarding the project and no letters of opposition were received. However, the USCOE required additional information and review time regarding the bridge construction over Otter Creek, grubbing activities adjacent to the channel and differing opinions regarding the calculation of salable mitigation credits. Upon resolution of these issues, the USCOE issued permit authorization on June 3, 1994. The entire regulatory agency review for the individual permit required less than one year to complete.

Upon permit authorization, construction began with the installation of silt fencing along Otter Creek as part of the on-site soil erosion control practices, and the excavation of over 38,000 cubic yards of soil to create the emergent, wet prairie and wet mesic prairie zones. Site excavation included the removal and stockpiling of suitable hydric topsoil for respreading after the wetland zones were graded. Each community zone was graded 12 inches below the specified grade and the stockpiled soil was respread to the appropriate depth. The remaining excavated material was removed to an off-site location. At the completion of site grading, the enhancement activities along Otter Creek were completed and the gravel paths and parking lot were constructed.

As part of the permitted project, an extensive maintenance and monitoring program was formulated to assure suitable conditions for the establishment and long-term survival of the proposed wetland communities, and to document progress in meeting performance standards. This management plan included criteria for weed control, prescribed burns, monitoring procedures, and performance standards as agreed upon with the USCOE. In addition, an in-depth hydrologic monitoring program was established to evaluate the accuracy and suitability of the as-built hydrologic regime. This monitoring program includes the use of PVC plastic piezometers and water level recorders to evaluate hydrologic conditions in Otter Creek and the constructed mitigation zones.

To assure suitable hydrologic conditions existed in the emergent zones, AES planted only the mesic prairie, wet mesic prairie, and wet prairie zones in the initial planting phase. An evaluation of the as-built emergent zones continued throughout the summer of 1994 and, with the presence of positive indicators, emergent plantings were completed in the spring of 1995.

As required, the mitigation site will be subjected to continued maintenance and monitoring activities and must meet performance standards as specified in the permit authorization. To date, the on-site conditions, as reflected by the presence of suitable wetland hydrology and native wetland vegetation in the upper community zones, suggest a successful wetland mitigation effort. Upon the completion of the final wetland plantings, the presence of a conservation easement, long term maintenance activities and final acceptance of the USCOE, it is expected that the St. Charles Wetland Mitigation Bank will provide for a variety of high quality wetland functions and values in perpetuity.