Fact Sheet for Antidegradation Assessment
RE: DuPage County and DuPage County Forest Preserve District County: DuPage
IEPA Log #C-0666-09
COE Log #2009-497
Contact: Brian Koch at 217/558-2012
March 1, 2012

The applicant has applied for 401 water quality certification for impacts associated with a landscape scale restoration project that would occur within a 360 acre river valley at the south end of the 811 acre West Branch Forest Preserve. The Preserve is owned and operated by the DuPage County Forest Preserve District and is located south of Army Trail, north of North Avenue, west of Fair Oaks Road, and east of Klein Road in DuPage County, Illinois (SE Quarter of Section 22, Township 40N, Range 9E). A fen restoration/wetland mitigation project and West Branch DuPage River improvement project are proposed. The combined objectives of these projects are to abandon the field tile system and restore remnant fens to rehydrate hydric soils, manage non-native and aggressive plant species that have colonized the Preserve, create approximately 90 acres of USACE approved wetland mitigation credits, stabilize the riverbank by forming a blanketed soil edge to retain water, improve river habitat by filling 5.5 acres of riverbed with rock in order to raise the riverbed by 2.5 feet and create 20 series of pools and riffles, and create a pilot channel east of the existing river channel in an old meander scar to provide appropriate hydrology to rehydrate hydric floodplain soils. By carrying out the proposed projects, the applicant intends to restore native habitat and biological communities throughout approximately 350 acres of the Preserve. Implementation of the projects would result in unavoidable impacts to 0.59 acres of jurisdictional wetlands and 5.5 acres of the West Branch DuPage River. Wetland impacts would be associated with the removal of the existing tile system, installation of the new infiltration system, and berming in saddle point areas where required. Impacts to the West Branch DuPage River would result from filling of the riverbed to achieve proper hydrology.

The following is a brief summary of each project:

Fen Restoration/Wetland Mitigation: Due to a deficit of upland groundwater recharge and resulting drying and oxidation of organic soils, much of the 34 acre Klein Fen is now colonized by tolerant invasive species. Adequate hydrology must be reestablished in order to properly restore this natural area, as well as other wetland areas that lack proper hydrology due to field tiling and channelization of the river. Currently the entire western upland of the project site is drained by a field tile network and stormwater drainage system that is then piped east under Klein Road. The applicant would restore proper hydrology to this area by intercepting these drainage systems upon crossing under Klein Road and incorporating a dry well design to facilitate infiltration of water into the subsurface geology. Additional field tiles throughout the remainder of the project site would be abandoned to facilitate wetland development. Approximately 90 acres of emergent wetlands would be developed by modifying surface water drainage and berming around saddle point areas to promote wetland development. The wetland mitigation credits generated by this project would be used to mitigate for impacts to wetlands caused by the O'Hare Modernization Program.

Restoration activities within the permit area would permanently impact 0.59 acres of emergent wetlands presently on site. Given that the impacted wetlands are not considered High Quality Aquatic Resources per the ACOE Chicago District Guidelines and on site mitigation would be conducted, the applicant proposes to mitigate at a 1.5:1 ratio. The recreated wetlands would be subject to a ten year maintenance and monitoring plan which includes herbiciding, prescribed burns, planting of native seed mixes, removal of non-native trees and shrubs, selective thinning of native trees and shrubs to promote an open canopy, and an overall enhancement of herbaceous communities. An additional 17.88 acres of wetlands would be temporarily impacted throughout the project site. Although no mitigation is required for these temporary impacts, the applicant proposes to restore these areas following the same ten year maintenance and monitoring plan proposed for the mitigated wetlands. Additionally, the applicant proposes to provide enhancements to adjoining non-wetland and flood plain forests by removing all non-native trees and shrubs, selectively thinning native trees and shrubs to promote an open canopy, and planting native trees and shrubs to increase diversity and habitat value.

West Branch DuPage River Restoration Project: The river restoration project would raise the elevation of the river channel by approximately 2.5 feet along the 1 mile project reach. Approximately 5.5 surface acres of the river would be filled with approximately 17,000 cubic yards of glacial outwash aggregate composed of sand, gravel and cobble. The matrix would be used to form a new channel and shaped to construct twenty riffle and pool structures throughout the reach. The new channel bed elevation would displace higher magnitude stormwater events from the confines of the river channel and would reduce bank full discharge by 29%, subsequently reducing erosion within the river channel. Low flow toe habitat enhancements would be created on the point bar deposition side of the channel across from designated pools. Pool locations will be constructed with banks comprised of cobble rock or root-wad habitats as specified within the project plans. The restoration would conclude with the construction of five rock cross vanes stepping the final bed elevation back to the existing grade at the south end of the project area. Additionally, a floodplain swale diversion channel would be created in an old meander scar which would provide appropriate hydrology to rehydrate hydric floodplain soils.

All fill, grading and construction work would be performed in dry conditions by utilizing a by-pass sump system. A two phase approach would be used during restoration, whereupon a north and south portion of the reach would each require a sheet pile diversion dam, sump, by-pass sump system and piping of the river flow below a downstream sheetpile back-flow dam. The captured river water between the sheetpile dams would be drawn down by additional smaller pumps to achieve optimal conditions for fish, reptile, amphibian, crayfish and mussel capture and relocation. Following relocation of captured organisms, restoration areas would be further drained to achieve workable dry conditions.

No mitigation for the 5.5 acres of fill is proposed, as the project objective is to restore and enhance the West Branch DuPage River. The proposed restoration plan is expected to greatly improve the chemical, physical and biological integrity of the river. The IEPA Load Reduction Estimation for Bank Stabilization estimates that the restoration project would reduce sediment loading by 1,054 tons/year, phosphorus loading by 1,054 lbs/year, and nitrogen loading by 2,108 lbs/year. In-stream habitat would be increased due to an increased variability of water column depths, flow rate, and substrate size and type, all of which would promote an increase in the abundance and diversity of fish, mussels, and macroinvertebrates. Due to the collective restoration efforts of all three projects, the increased hydration

of floodplain soils would promote increased groundwater contributions to the river during low flow conditions, which may be beneficial to hyporheic organisms such as mussels and other macroinvertebrates.

Identification and Characterization of the Affected Water Body.

Segment GBK-09 of the West Branch DuPage River is a General Use water with a 7Q10 flow of 10.2 cfs existing upstream of the project location. This segment is listed on the draft 2010 Illinois Integrated Water Quality Report and Section 303(d) List as impaired for primary contact recreation (cause = fecal coliform) and aquatic life use (causes = chloride, pH, phosphorus (total), sedimentation/siltation and zinc). This segment is not enhanced in regards to the dissolved oxygen water quality standard and it has not been given an integrity rating or been listed as biologically significant based on the 2008 Illinois Department of Natural Resources publication Integrating Multiple Taxa in a Biological Stream Rating System.

The jurisdictional wetlands within the project site have zero 7Q10 flow and are General Use waters. The water bodies have not been assessed under the Agency's 305(b)/303(d) program and have not been given an integrity rating or been listed as biologically significant in the 2008 Illinois Department of Natural Resources publication Integrating Multiple Taxa in a Biological Stream Rating System. The water bodies are not enhanced in regards to the dissolved oxygen water quality standard.

Identification of Proposed Pollutant Load Increases or Potential Impacts on Uses.

River restoration activities would likely cause temporary increases in suspended solids during the diversion phase. Aquatic life would be temporarily displaced during river drawdown and upstream and downstream movement would be temporarily restricted during the fill and grading work. However, these short-term disruptions would not cause any long-term stream degradation, as completed sections of the river would be quickly re-colonized. The in-stream modifications would result in an overall improvement of water quality and benthic habitat for aquatic life. Fen/wetland restoration activities would also have the potential to cause temporary increases in suspended solids during surface activities. However, the removal of field tiles and the restoration of these fen/wetland areas would allow for sediment and nutrient retention and would ultimately have a positive impact on water quality and floral and faunal communities within the Preserve.

Fate and Effect of Parameters Proposed for Increased Loading.

Any increases in suspended solids would be local and temporary and would be offset by the substantial reductions of sediment and pollutant loadings into the river following fen/wetland and river restoration. The benthic habitat initially disturbed by the restoration activities would ultimately be enhanced through the introduction of clean substrate and the creation of riffle/pool structures which would provide increased habitat heterogeneity.

Purpose and Social & Economic Benefits of the Proposed Activity.

The proposed activities would reestablish fens and wetlands within the Preserve and would replace invasive flora with native species that were present prior to field tiling. River restoration activities would aid in restoring proper hydrology to floodplain areas and would increase in-stream habitat and flow heterogeneity for aquatic life use. Along with the physical and biological benefits, the proposed activities would also result in substantial reductions in phosphorus and sedimentation/siltation, which are two pollutants that have been listed as causes of aquatic life use impairment in the West Branch DuPage River.

Assessments of Alternatives for Less Increase in Loading or Minimal Environmental Degradation.

The construction of the proposed project would follow guidelines set forth by the Agency and USACE. Erosion control measures have been designed in accordance with the DuPage County Countywide Stormwater and Flood Plain Ordinance to minimize the impact of stormwater runoff from the proposed project. Depressional storage areas have been designed to have no steeper than 7:1 side slopes and would release flow through subsurface infiltration pipes. Runoff from the disturbed areas would be directed to the constructed wetlands to provide retention of total suspended solids and promote infiltration. The entire proposed project is a best management practice and would allow sediments and contaminants to settle while creating wetland acreage.

Wetland impacts were minimized to the greatest extent possible. The original plan called for larger wetland impacts but these impacts were minimized by removing access routes and modifying the design concept. The 0.59 acres of wetland impacts would be associated with the removal of the existing tile system, installation of the new infiltration system, and berming where required. If the restoration project is to proceed as planned, these impacts are unavoidable. Mitigation for these impacts has been proposed by the applicant.

Environmental degradation has been minimized to the greatest extent. The least intrusive alternative would be to not complete the project. This is not an acceptable alternative given that this is a useful project that would restore this portion of the Preserve.

Summary Comments of the Illinois Department of Natural Resources, Regional Planning Commissions, Zoning Boards or Other Entities.

The applicant has a Memorandum of Understanding with IDNR which allows for an expedited review of the endangered and threatened species consultation process. The applicant possesses their own qualified staff and the biological data necessary to conduct initial biological reviews. In instances where the proposed actions are not in the vicinity of protected resources, or are in the vicinity of protected resources but are unlikely to haven an adverse impact, the applicant has the ability to forego consultation with IDNR through the EcoCAT website. The applicant submitted an Internal Action Report for the proposed project which satisfies the endangered and threatened species review process for DuPage County. In this instance, the applicant determined that the black-crowned night heron (Nycticorax nycticorax), American

bittern (Botaurus lentiginosus), northern harrier (Circus cyaneus), short-eared owl (Asio flammeus), red pine (Pinus resinosa) and black-billed cuckoo (Coccyzus erythropthalmus) have been observed at or in the vicinity of the project site but are not expected to be adversely impacted by the proposed activities. Breeding evidence of the listed avian species has not been observed on-site and the proposed project will likely enhance habitat for these species. The red pine has been observed on-site, but this species is not native to northern Illinois ecosystems and does not represent native stock.

Agency Conclusion.

This preliminary assessment was conducted pursuant to the Illinois Pollution Control Board regulation for Antidegradation found at 35 Ill. Adm. Code 302.105 (antidegradation standard) and was based on the information available to the Agency at the time the assessment was written. We tentatively find that the proposed activity would result in the attainment of water quality standards; that all existing uses of the impacted waters would be maintained or restored; that all technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loading have been incorporated into the proposed activity; and that this activity would be a benefit to the Preserve and its visitors by restoring and enhancing natural areas for preservation of native flora and fauna. Comments received during the 401 Water Quality Certification public notice period will be evaluated before a final decision is made by the Agency.