



Winnequah Park PCB Lagoon Dredging Feasibility Study, 2017

DNR Large Scale Lake Management Planning Grant Final Report, LPL164717

Winnequah Park is the City's most prominent park located in the heart of the City. This location includes the City's center: City Hall, Community Center, Police & Fire Departments, the Library, a public elementary school. The park also includes several playing fields, a skate park, 2 large playgrounds, and the City's pool. The park is surrounded by a residential neighborhood and is connected to Lake Monona and the Yahara River chain. Due to the park's heavy use and community value, as well as the potential for polychlorinated biphenyls (PCBs) to affect plant, wildlife, and possibly human health, the City has made this project a top priority. The City's goal for this project is produce a project that's designed to allow residents a safer, healthier, and more easily accessible park and recreational area in and around the City's northern half of the Winnequah Park Lagoon. The 2017 Lake Management Planning Grant will be used to help subsidize the high costs of engineering design and surveys, as well as sediment sample testing.

After sediment sampling in 2015 showed that PCBs existed in loose sediments located in Monona's northern Winnequah Park Lagoon, the City was asked by the WDNR to investigate the extent of PCBs contamination and create a remediation plan to remove the pollutants. In 2016 the City, aided by a Large Scale Lake Management Planning grant, hired Strand Associates, Inc. to survey and report on the extent of the PCBs in the northern and southern lagoons. After the completion of this investigation, and with advice from the WDNR, the City of Monona hired Strand again in 2017 to perform additional sediment sampling in order to create a more accurate survey of the extent of PCB laden sediment in the lagoons. They also asked Strand to prepare a plan that included habitat rehabilitation, expansion of recreational opportunities in and around the lagoons, as well as PCB removal via dredging.

On June 14, 2017, additional sediment and parent material samples were collected from three locations north of Nichols Road (N-16, N-17, and N-18). Samples were collected at these locations to assess sediment and parent material quality in the channel north of the lagoons because dredging may be considered through this channel. The following sampling and analysis was completed at locations N-16, N-17, and N-18:

1. A grab parent material sample and a grab sediment sample were collected at each location. The six grab samples were analyzed for TOC, PCBs, and PAHs.
2. One composite sediment sample was collected from the three locations. The composite sample was analyzed for the project's previously approved partial list of NR 347, Table 1 parameters, including: PAHs; total metals (As, Ba, Cd, Cr, Cu, Cn, Fe, Pb, Mn, Hg, Ni, Se, and Zn), PCBs, nitrate; nitrite, ammonia, TKN, TP, grain size by hydrometer, percent solids, TOC, and moisture content.

Figure 1 in Attachment 1 of Attachment D of the provided report (*2017 North Winnequah Park Lagoon Improvements Preliminary Design*) shows the Winnequah Park lagoons and the 2015, 2016, and 2017 sampling locations, excluding sample locations S1 and S2. Locations S1 and S2 are not shown because PCBs were not detected at those locations and dredging in that area is not being considered at this time. Sample locations were recorded using a survey-grade global positioning system (GPS) with a horizontal accuracy of less than 1 centimeter (cm) and vertical accuracy of approximately 1 cm.

Dry weight concentrations of PCBs and PAHs exceed the NR720 Industrial Site Direct Contact standards in the area of SB-4, SB-5, SB-6, and N-8. No significant concentrations of contaminants were detected in the parent material samples collected. The extent of sediment contamination has been defined and no further investigation of sediment or parent material is recommended.

Excavation and landfill disposal of sediment with concentrations of total PCBs and PAHs exceeding the NR 720 Industrial Site Direct Contact standards (the area of SB-4, SB-5, SB-6, and N-8) are recommended. This area is shown on Figure 2 and on the plan and profile sheet (Attachment 1). The estimated quantity of material recommended to be dredged from this area (approximately Station 310+90 to Station 33+00), assuming removal of sediment plus 6 inches of parent material, is approximately 500 CYs. Cross sections of the lagoon showing water elevations, sample locations, and sediment thickness are also provided in Attachment 1 of Attachment D of the provided report (*2017 North Winnequah Park Lagoon Improvements Preliminary Design*). Because no significant contamination has been detected in the parent material and planned dredging of contaminated sediment will include the removal of approximately 6 inches of parent material, no post-dredging confirmation sampling is planned.

Dredging and disposal of contaminated sediment is anticipated in 2019. Other dredging efforts may be completed to remove excess sediment from the lagoons, both north and south of Nichols Road, for improving stormwater treatment and storage capacity, the installation of stormwater pretreatment devices, and for streambank restoration. All of these improvements will require an engineering and permitting effort. Construction drawings and specifications will be required to convey project design information to the WDNR for review approval and issuance of permits.

Please contact Brad Bruun, Monona Public Works Project Manager, if you have any questions.

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