



District of Powers Lake NEWSLETTER

Published for all those who use and love Powers Lake

JUNE

2013

JEFFERSON ISLAND CHANNEL (JIC) PHASE 2 DREDGING INVESTIGATION MEMORANDUM - MAY 13, 2013 FROM DAVID KRAFT, P.E.

This memorandum outlines the work performed by Hey & Associates, Inc. (Hey) to assess the feasibility and need for additional dredging of the Jefferson Island Channel over the entire length. To perform this task, Hey reviewed both the 1991 and the 2011 SEWRPC Lake reports. Of particular interest are Map 39 and Figure 26 from the 1991 report showing a surveyed profile of the Jefferson Island channel presumably around the time of the publishing of that report.

In addition to reviewing the reports, Hey performed a survey of the channel. Survey included cross sections of the channel as well as a longitudinal profile of the channel. Profile survey was done approximately every 50 feet of the channel centerline. Depth of water and depth of soft sediment were also measured. Profile survey was performed during ice conditions using a hand auger and a probe to measure sediments. The attached exhibit (available on our website: www.powerslake.com) shows the project area with the 1991 SEWRPC profile plotted along with the existing profile developed from our survey. The exhibit also shows the alternative profiles that will be discussed below. Generally, since the 1991 report there has been an accumulation of 2-5 feet of material in the channel.

Utilizing this information, we developed three alternatives for dredging the channel. These are also shown on the attached exhibit (also available on our website).

Alternative one consists of dredging the channel down to the existing culvert invert and is considered the minimum amount of dredging that would result in a practical benefit from a navigation perspective.

Alternative two calls for dredging to an elevation of approximately 827, or a water depth of 4 to 5 feet.

Alternative three maximizes the dredging to the extent practical while maintaining stable shorelines. The attached calculations and cost opinions document these alternatives. The attached costs are intended to give a range for each option.

The disposal site will be the most critical component to the costs. The proximity of the site and whether or not a dumping fee will be required will drive the costs. This is unknown at this time and if the project is advanced should be the first component that is finalized so that unit costs for material removal can be determined. Generally, approximately \$15-25/cubic yard (CY) to get the material dredged and moving to a disposal site on the low end. The attached costs also do not account for additional engineering and permitting. Assuming that a free local dredge disposal site cannot be identified, alternative one may have a total project cost in the range \$100,000.

There are several means by which dredging may be able to be accomplished at the Jefferson Island Channel.

We will have several options for dredging.

North of the Culvert:

1. Mechanical dredging from the shoreline
2. Mechanical dredging from a barge hauled to a truck
3. Hydraulic Dredging to dewatering bags east of channel

South of the Culvert:

1. Mechanical dredging from a barge hauled to a truck
2. Hydraulic Dredging to dewatering bags east of channel

The likelihood is that the most cost effective and practical approach will be to do the majority of the work with barge mounted mechanical equipment. We believe that the

channel should be wide enough to accommodate this at normal water level. Mechanical dredging from the shoreline will also likely be practical north of the culvert, but will result in additional restoration costs, as the area will be disturbed by the dredging activities. The area south of the culvert likely cannot be practically dredged by mechanical means from the shoreline.

Hydraulic dredging will require additional permitting and require the uses of geotextile dewatering bags that would need to be placed on the shoreline and allowed to dry out for an extended period of time before dredged material can be removed to another location. The need to handle the material twice likely makes this a cost prohibitive approach. If the project is advanced further, the final dredging approach can be determined with the input of local dredging contractors.

Having reviewed the information noted above, our conclusion is that the primary benefit of a dredging project at the Jefferson Island Channel is to increase navigability of the channel. There is not likely to be an ecological benefit to the dredging project. We believe that decisions on this project should be made with navigability being the primary objective. This was confirmed at the April quarterly meeting by the Wisconsin DNR. (After the June 21st meeting, approved minutes to include this discussion will be made available on our website also.) The sediment in the channel is largely the result of collected organic matter originating from leaf matter from the adjacent banks and to a lesser extent algae and aquatic plant growth. The channel is likely to continue to collect these sediments, but in a normal water condition there appears to be adequate freeboard to accommodate canoes and kayaks. Sediment depth can continue to be monitored to determine the rate of accumulation and the need for potential future dredging.

AQUATIC INVASIVE TREATMENT - EURASIAN WATER MILFOIL (EWM) AND CURLY LEAF PONDWEED (CLP)

Stantec once again treated our lake for



EWM and CLP on May 21st, 2013. The survey noting locations of these invasives is available on our website: www.powerslake.com or www.powerslake.org. The survey performed in August, 2012 indicated 5.95 acres of EWM and 0.60 acres of CLP. The potential areas near your property were selectively treated to help reduce a nuisance population of EWM and/or CLP, and to help restore native aquatic plant populations in Powers Lake. At the time of treatment, a bright yellow sign was placed on each dock or shoreline within 200' of any of the affected treatment areas.

STAFF GAUGE AND BENCHMARK

HEY and Associates, Inc has recently installed two staff gauges at the outlet structure to Powers Lake, located on the southwest side of the lake, on Powers Lake Road. A staff gauge is a popular tool for measuring water levels in lakes, rivers, reservoirs, and other bodies of water. It provides a cost efficient solution and can remain at a site for multiple years at a time with little damage or wear if installed and maintained properly.

The first gauge is mounted on the outlet structure and the 0.00 foot mark has an elevation of 831.90 NAVD88 (North American Vertical Datum 1988).

The second gauge is mounted on a pole located approximately 30 feet from shore to capture the low water elevation periods and the 0.00 mark on that gauge is 830.19 NAVD 88.

The firm also established a benchmark on the new headwall, or curb, of the outlet structure which is a scribed cross in the headwall on the east side of the road, and is at an elevation of 836.40 NAVD 88. These gauges and the benchmark will help us monitor lake levels over time and also help determine when a "slow, no wake" restriction is necessary.

ICE ON / ICE OFF 2012 - 2013 WINTER

Although some areas of the lake began freezing in late December and early January, several large areas remained open until Valentine's Day, February 14th, 2013. The lake became completely open on Monday, April 8th, 2013.