

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

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October 20, 2016

Mr. Brian Kreuziger
706 West Rock Place
Glendale, WI 53209

Dear Mr. Kreuziger:

Pursuant to your October 13, 2016, electronic mail request to Michael G. Hahn of the Commission staff, we are providing, by electronic mail, hydraulic model input data for the Milwaukee River related to the Estabrook dam analysis performed by the Commission staff at the request of the Milwaukee County Department of Parks, Recreation and Culture. In addition, we have summarized the model adjustments made to the Manning's roughness coefficients to reflect vegetation which had become established since the drawdown of the impoundment.

Specifically, we are providing U.S. Army Corps of Engineers HEC-RAS River Analysis System Version 3.1.3 model input files that were developed as part of the analysis documented in SEWRPC Staff Memorandum, *Hydraulic Analyses for Estabrook Dam Environmental Assessment*, revised April 25, 2014. The three HEC-RAS plan scenarios provided are:

- Alternative 1 and 1A-Rehabilitated Dam with flood flows (referred to as *Existing Conditions with Dam* in the HEC-RAS plan file, results in Staff Memo Table 1, flows 10- to 500-year recurrence interval),
- Alternative 1 and 1A-Rehabilitated Dam with normal flows (referred to as *Existing Conditions with Dam (low flow)* in the HEC-RAS plan file, results in Staff Memo Table 1, flows median and mean), and
- Alternative 2-Dam Abandoned and Removed (referred to as *Dam Removed* in the HEC-RAS plan file, results in Staff Memo Table 2).

In addition, as you requested, we are also providing HEC-RAS Version 3.1.3 model input files representing the existing dam condition with the spillway gates closed under flood flow conditions. That condition is not included in our April 25, 2014, Staff Memorandum, but it is included as an attachment in the *Environmental Assessment for Estabrook Dam, Milwaukee County, Wisconsin*, prepared by AECOM, August 2014 (referred to as *Dam-in-place, gates closed, all flows* in the HEC-RAS plan file, results in EA Attachment 4).

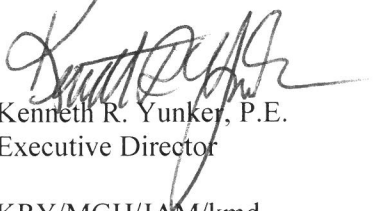
As noted on page 4 of the Staff Memo, limited adjustments were made to the Manning's roughness coefficients to reflect vegetation which had become established since the drawdown. These adjustments

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were made at modeled cross-sections RM 7.851, RM 7.876, and RM 8.003 based on field observations made by SEWRPC staff in March 2014. At RM 7.851, the Manning's roughness coefficient representing an approximately 110-foot section was changed from 0.035 to 0.04. At RM 7.876, the roughness coefficient representing an approximately 150-foot section was changed from 0.03 to 0.04. At RM 8.003, the coefficient representing an approximately 60-foot section was changed from 0.03 to 0.04.

We trust that the model and information provided will be useful to you. Please contact Joshua A. Murray of the Commission staff (262-953-3207, jmurray@sewrpc.org) if you have any questions.

Sincerely,



Kenneth R. Yunker, P.E.
Executive Director

KRY/MGH/JAM/kmd
#234550 – Estabook Dam Request

cc: Mr. Kevin Haley, Milwaukee County