



Donohue & Associates, Inc.
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July 27, 2017

Mr. Brian Helminger
District Director
Heart of the Valley MSD
801 Thilmany Road
Kaukauna, WI 54130

Re: Amendment No. 12 to the Engineering Services Agreement for
Engineering and Management Services to Obtain 30% District-Wide Inflow Reduction
2017 and 2018 Flow Data Evaluation

Dear Mr. Helminger:

Thank you for the opportunity to continue providing services for Heart of the Valley MSD relating to the I/I reduction program for an additional two years. Per our discussions, Donohue has identified three optional paths from which the District can select. These options are briefly discussed as follows:

Option A would involve the same level of effort to complete the Annual Performance Review as provided during the past several years. Thus far, Donohue has utilized the original hydrologic model developed by OHM as a “benchmark” to predict how the system would have responded in 2008-2009 to today’s rainfall. I/I reduction to date has been calculated as the difference between simulated and observed I/I rates.

Option B would provide the annual review based on the original model and include additional services to identify potential impacts caused by existing landfill properties within the District. The scope for these services is based on Donohue’s understanding that as two landfills have increased in size, increasing leachate flows may be offsetting reductions in I/I rates. Preliminary analyses of several years’ of monthly leachate flows have confirmed that landfill flows are in fact increasing in response to rainfall. However, we cannot ascertain impact on I/I volumes and rates from monthly totals. Therefore, our services will include the development of a unit hydrograph model to replicate 2017 landfill flows and correct I/I flows accordingly. We have also included the effort to scale and apply this model to previous years’ analyses, retroactively correcting these years’ I/I reduction estimates to account for landfill flows.

Option C would involve development of a new model based on current available data (2017) including corrections for landfill flows. Over time, factors other than I/I reduction can affect flow rates, reducing the precision of I/I reduction estimates. Donohue proposes developing and calibrating a new hydrologic model as a new benchmark. This would be done using the

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commercially available MIKEURBAN modeling software. This software has a more robust rainfall-dependent-infiltration (RDI) computational engine that can better replicate the complex wet weather response due to short-term and long-term hydrologic phenomena. Furthermore, being commercially available, Donohue (or others) will be able to refine and update the model in the future as necessary at much lower cost. Finally, Donohue has already developed a hydraulic model of the HOV interceptor system in MIKEURBAN. The hydrologic and hydraulic models would be directly coupled, giving the ability to evaluate the hydraulic response of the interceptor to wet weather flows, and to evaluate potential system modifications. The original model will also be run for the previous 12 months and the results compared to allow for continued progress evaluation.

If you have any questions regarding the attached Amendment No. 12, please do not hesitate to call me at (920) 803-7321 or email at twebb@donohue-associates.com.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tracey L. Webb".

Tracey L. Webb, P.E.
Project Manager

Enclosures: As noted

AMENDMENT NO. 12 to
ENGINEERING SERVICES AGREEMENT
Engineering and Management Services to Obtain
30% District-Wide Inflow Reduction (Project)
Executed September 2, 2004

2017 and 2018 Flow Data Evaluation

This Amendment is by and between:

Heart of the Valley Metropolitan Sewerage District (Owner)
801 Thilmany Road
Kaukauna, WI 54130

and

Donohue & Associates, Inc. (Donohue)
3311 Weeden Creek Road
Sheboygan, WI 53081

Who agree to amend the original Agreement, as follows:

PART I – B. SCOPE OF SERVICES

This amendment is intended to provide services related to the annual evaluation of flow data from HOVMSD and individual communities collected in 2017 and 2018. Basic services to be provided by Donohue under this amendment will be for the authorized services identified as follows:

OPTION A. ANNUAL PERFORMANCE REVIEW - ONLY

1. Review performance indicators as follows:
 - a.) Observations from the wastewater treatment plant.
 - b.) Analysis of the clear water components of flow through the antecedent moisture model.
 - Use the existing hydrologic model with rainfall and flow data inputs to evaluate clear water reduction by community for the previous 12 months.
 - Evaluation includes a thorough quality review of the rainfall and flow data. Anomalies in the data will be discussed with the HOVMSD.
 - Update the trend-line analysis tracking each community's clear water reduction progress to date and rolling 3-year trend line.

c.) Development of clear water components of flow required by the Wisconsin Department of Natural Resources Compliance Maintenance Annual Report.

2. Prepare Progress Report

a) Provide HOVMSD with a draft written summary memorandum.

b) Attend HOVMSD commission meeting to present the draft information.

c) Incorporate commission comments into the final memorandum and presentation.

d) Attend a joint HOVMSD and community meeting to present the final memorandum.

OPTION B. ANNUAL PERFORMANCE REVIEW WITH LANDFILL CORRECTION

1. All items as identified in Option A

2. Review landfill flow data and develop volumetric analyses and unit hydrographs in response to rainfall.

3. Estimate previous year landfill flows.

4. Remove landfill flows from current year antecedent moisture model analysis.

5. Update preceding six years' antecedent moisture model analyses to remove landfill flows.

OPTION C. ANNUAL PERFORMANCE REVIEW WITH UPDATED MODEL INCLUDING LANDFILL CORRECTION

1. All items as identified in Option A & Option B

2. Develop and calibrate a new RDII hydrologic model utilizing MIKEURBAN software with rainfall and flow data inputs to evaluate clear water reduction by community for the previous 12 months.

a) Compare existing model results for previous 12 months to new model results.

PART II – C. PROJECT TIMING

This agreement is intended to provide yearly data analysis and reporting. The analysis of the flow and rainfall data will begin after January 1 of each year (January 1, 2018 for the 2017 data). A draft summary of the analysis will be presented to the commissioners at the March commission meeting in 2018 and 2019. The final report will be presented at a joint commission and community meeting in April of each year.

PART III – OWNER RESPONSIBILITIES

1. Provide 2017 and 2018 flow meter and rain gauge data.
2. Provide landfill flow data from the existing landfills in Kaukauna and Little Chute for the period of record. Flow totals shall be on a monthly or smaller time interval. (Options B-C only)
3. Provide hourly flow data from the existing landfills in Kaukauna and Little Chute for a period of no less than three months in the Summer/Fall of 2017. (Options B-C only)

PART IV – A. COMPENSATION

Compensation as defined in the Scope of Services of this Amendment shall be in accordance with Donohue’s standard charge out rates in effect at the time the Services are performed. Routine expenses will be billed at cost. The cost for these basic Services for the Items as identified in Part I shall not exceed the following amounts identified as follows:

OPTION A. ANNUAL PERFORMANCE REVIEW – ONLY

First year (2017)	\$20,900	
Second year (2018)	\$20,900	
Total amended amount Not to Exceed		\$41,800

OPTION B. ANNUAL PERFORMANCE REVIEW WITH LANDFILL CORRECTION

First year (2017)	\$34,600	
Second year (2018)	\$22,100	
Total amended amount Not to Exceed		\$56,700

OPTION C. ANNUAL PERFORMANCE REVIEW WITH UPDATED MODEL INCLUDING LANDFILL CORRECTION

First year (2017)	\$86,500	
Second year (2018)	\$22,100	
Total amended amount Not to Exceed		\$108,600

Donohue will not exceed amount for authorized option without written approval from the Owner.

APPROVED FOR OWNER

APPROVED FOR DONOHUE

By: _____

By: _____

Printed Name: _____

Printed Name: Edward S. Nevers, PE

Title: _____

Title: Senior Vice President

Date: _____

Date: _____