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SEWRPC Staff Memorandum

HYDRAULIC ANALYSES FOR ESTABROOK DAM ENVIRONMENTAL ASSESSMENT

April 8, 2014
Revised April 25, 2014

INTRODUCTION AND BACKGROUND

An interagency technical advisory group meeting to discuss issues relative to the scope of a proposed Estabrook dam environmental assessment (EA) was convened by Milwaukee County, the owner of the dam, on November 28, 2012. During that meeting, there was considerable discussion of the need to develop and evaluate alternatives relative to the future status of the Estabrook dam, and Milwaukee County staff asked that the Southeastern Wisconsin Regional Planning Commission (SEWRPC) conduct hydraulic analyses of alternatives. A final decision on the specific features of each alternative was not made at that time, but it was decided that the SEWRPC hydraulic model of the Milwaukee River would incorporate bathymetric (riverbed elevation) survey data collected for the United States Environmental Protection Agency (USEPA) Lincoln Park/Milwaukee River Channel Phases 1 and 2 projects to remediate contaminated sediment within the Milwaukee River Area of Concern (AOC) and that the SEWRPC staff would coordinate with the Wisconsin Department of Natural Resources (WDNR) and County staffs to obtain those data.

On February 25, 2013, WDNR convened a meeting of a smaller interagency group to review specifics of the EA and coordinate the various components of the EA process. At that meeting, County staff agreed to coordinate with the Cities of Glendale and Milwaukee to provide SEWRPC with storm sewer outfall information for use in assessing relative changes in Milwaukee River stages at outfalls under the various alternatives to be evaluated hydraulically.

On August 27, 2013, Milwaukee County convened an Estabrook dam EA technical work group meeting at which one of the main topics of discussion was possible specific components of the alternatives relative to the dam.

A second full interagency technical advisory group meeting to discuss issues relative to the EA was organized by Milwaukee County on February 11, 2014. One of the main objectives of that meeting was obtaining agreement on 1) the alternatives to be addressed by the SEWRPC hydraulic analysis and 2) the specific components of each alternative. Based on that discussion, and on follow up discussions between the SEWRPC staff and the WDNR and County staffs for the purpose of clarifying details, the following alternative plans were selected for inclusion in the EA and for hydraulic analysis:

1) Rehabilitate the dam

1A) Rehabilitate the dam and add provisions for fish passage from downstream to upstream

2) Abandon and remove the dam

3) Abandon and remove the dam, providing a rock ramp to facilitate fish passage and establish an impoundment

The options of doing nothing or replacing the dam with a new structure were identified, but eliminated from further consideration. The do nothing alternative was eliminated because it would not address the existing deficiencies in the structure or public safety considerations, and therefore, would not be responsive to the WDNR Administrative Order requiring action relative to the dam. The option of constructing a new dam was eliminated because of the relatively high cost.

Another full interagency technical advisory group meeting was organized by Milwaukee County on April 9, 2014. One of the main objectives of that meeting was to discuss the April 8, 2014, preliminary draft SEWRPC hydraulic analysis. Based on that discussion, an additional alternative plan was identified and selected for inclusion in the EA and for hydraulic analysis. The additional alternative plan is:

4) Remove the gated spillway portion of the dam, lower the crest of, and rehabilitate, the serpentine overflow spillway, and provide a rock ramp at the location of the gated spillway to facilitate fish passage and establish an impoundment

SOURCES OF INFORMATION

The following sources of information were used in developing the hydraulic analysis:

1. Bathymetric data from the USEPA Lincoln Park/Milwaukee River Channel Phases 1 and 2 projects to remediate contaminated sediment within the Milwaukee River AOC

2. Storm sewer outfall information for the Cities of Glendale and Milwaukee as provided by the City of Milwaukee and the WDNR. Outfall pipe locations and sizes are available for both communities. Pipe invert elevations are only available for the City of Milwaukee.

3. The November 15, 2011, "owner's review" version of the plans for the "Estabrook Dam Rehabilitation" prepared by AECOM Technical Services for the Milwaukee County Department of Parks, Recreation & Culture.

4. Information provided to SEWRPC by the Milwaukee River Preservation Association (MRPA), with their letter of March 11, 2014. The information provided by the MRPA that is directly applicable to the SEWRPC hydraulic analysis included a.) a map and accompanying table describing MRPA field observations of changes in vegetative growth in areas along the River that were once normally submerged, but have been continuously exposed since the current drawdown of the impoundment was ordered by WDNR for safety reasons, beginning in 2008 and b.) an undated report, apparently from the mid-1930s, by L. I. Johnstone entitled "Proposed Dam, Estabrook Park, Milwaukee County." Additional information provided by MRPA was reviewed, but, while of interest relative to aspects of the status of the dam, were not directly applicable to the hydraulic analysis for the EA.

DESCRIPTION OF DAM FOR HYDRAULIC MODELING PURPOSES

Estabrook dam consists of two spillways separated by a natural island. From left to right, looking downstream, the dam and island components consist of:

- A concrete gated spillway with 10 steel vertical lift gates set in 11.5-foot-wide by 16-foot-high bays, with each gate, when closed, resting on a concrete sill at elevation 609.4 feet above National Geodetic Vertical Datum, 1929 adjustment (NGVD 29). Also, one 10-foot-wide bay with a concrete weir having a crest elevation of 616.5 feet above NGVD 29 is located on each end of the vertical lift gate section.

- The island,

- A serpentine concrete overflow spillway with 1) an 88-foot-long stop log section having a concrete crest elevation of 613.6 feet above NGVD 29 and a top-of-stop-log elevation of 616.4 feet above NGVD 29, and 2) a 450-foot-log concrete weir with a crest elevation ranging from 616.4 to 616.6 feet above NGVD 29.

SCOPE OF HYDRAULIC ANALYSIS

The hydraulic analysis of alternatives as performed by SEWRPC was for the purpose of determining the effect of the dam alternatives on water surface profiles of the Milwaukee River main stem under normal flow conditions (defined as the long-term median and mean flows based on 100 years of record at U.S. Geological Survey continuous streamflow gage No. 04087000) and flood flows with annual probabilities of occurrence of 10-, 2-, 1- and 0.2-percent (recurrence intervals of 10, 50, 100, and 500 years). The entire reach of the River in Milwaukee County was modeled, but the focus of the analysis was on the reach extending from just downstream of the dam upstream to W. Bender Road. In this reach the 10-percent-annual-probability flood flow is 8,790 cfs. The 2-percent-annual-probability flow ranges from 12,550 to 12,900 cfs. The 1-percent-annual-probability flow ranges from 14,340 to 14,800 cfs. The 0.2-percent-annual-probability flow ranges from 18,240 to 18,810 cfs. The median flow is 240 cfs, and the mean flow is 451 cfs, for the 100-year period of record.

In addition to estimating profiles under various flow conditions, the relative changes in River stage elevation at identified storm sewer outfalls were estimated.

The hydraulic analysis was not intended to address issues related to establishment of an operational order for the dam by the WDNR.

HYDRAULIC MODELING

The hydraulic analysis of the Milwaukee River main stem was performed using the U.S. Army Corps of Engineers HEC-RAS river analysis system computer program. The hydraulic model of the River was developed by the SEWRPC staff under an ongoing floodplain mapping study being conducted for the Milwaukee County Automated Mapping and Land Information System (MCAMLIS) Steering Committee and the Milwaukee Metropolitan Sewerage District. The hydraulic model which served as the starting point for the Estabrook dam EA analysis is the effective model for Federal flood insurance and local zoning purposes as described in the September 26, 2008, Federal Emergency Management Agency (FEMA) flood insurance study (FIS) for Milwaukee County.

Existing Condition
This condition was established to represent a comparative condition representative of a situation where the dam gates were allowed to be operated in response to changing flow conditions. Under flood flow conditions, the dam gates were assumed to be fully opened, similar to the current condition under the WDNR-ordered drawdown and to the condition attainable prior to the drawdown order. Under normal flow conditions, it was assumed that the gates could be closed so that those lower flows would be conveyed primarily over the overflow spillway and the two weir bays on either end of the gated spillway. That situation would be similar to the condition attainable prior to the drawdown order. In this case the "existing" designation refers to representation of existing Milwaukee River channel conditions and the ability to fully operate the dam consistent with the existing configuration. This is considered to be the appropriate condition to which the alternatives for the dam should be compared because it is consistent with maximization of the hydraulic capacity of the dam to pass floods and with the "normal" dam operating condition prior to the drawdown order when the impoundment was maintained outside of the winter months.

The first step in development of an existing condition HEC-RAS model for comparison with the models for the dam alternative conditions considered under the EA was refinement of the FEMA FIS model to reflect bathymetric data obtained under the USEPA Lincoln Park/Milwaukee River Channel Phases 1 and 2 projects for the Milwaukee River Area of Concern. For the Phase 1 sediment removal project, which has been implemented, as-built bathymetric information was available in the project area of the west Milwaukee River oxbow at the River's confluence with Lincoln Creek. For the Phase 2 project, which has been designed but has not yet been implemented, existing condition bathymetric survey information was available. The effective FEMA model was refined by modifying existing River channel cross sections to reflect as-built, post-project Phase 1 bathymetric conditions or existing, pre-project Phase 2 conditions and, where appropriate, adding channel and overbank cross sections to the model to represent those conditions.

In addition, the representation of Estabrook dam was refined to specifically reflect the elevation of the dam sill in the gated spillway section, to include the 10-foot-wide weir section on each end of the gated spillway, and to assume that the stop logs were in place under all flow conditions analyzed.

The model was also updated to reflect the two new Milwaukee River Parkway bridges over the west Milwaukee River oxbow, which were constructed after the date of the effective model.

Limited adjustments of Manning's roughness coefficients were made in the reach of the River generally between W. Hampton Avenue and the abandoned railroad bridge upstream of Lincoln Park to reflect vegetation which has become established since the drawdown of the impoundment was ordered by WDNR in 2008. The general locations of the areas were determined from the map and table provided by the MRPA, and were field checked by the SEWRPC staff on March 14, 2014.

1 and 1A) Rehabilitated Dam (With and Without Fish Passage)
The proposed dam repair and rehabilitation, as set forth on the 2011 plans prepared by AECOM Technical Services, would maintain the hydraulic characteristics of the existing dam. Also, as agreed during the February 11, 2014, interagency technical advisory group meeting, it is assumed that any fish passage facilities for the dam could be provided in such manner that the hydraulic characteristics of the dam would not be altered. Thus, the rehabilitated dam hydraulic model and the rehabilitated dam with fish passage hydraulic models are the same as the existing condition model.

2) Dam Abandoned and Removed
To represent this condition, the entire dam structure, including the gated and overflow spillway sections and the abutments, was assumed to be removed. The model for this condition was developed by modifying the existing condition model to reflect those removals.

3) Dam Abandoned and Removed with a 5.5-Foot-High Rock Ramp Constructed
This condition was represented by adding a 5.5-foot-high rock ramp across the full width of the Milwaukee River channel at a location approximately 1,600 feet upstream of the dam site. The rock ramp would have a crest elevation of 614.8 feet above NGVD 29, and an overflow length of 250 feet perpendicular to the direction of flow. The ramp would have a three horizontal on one vertical slope on its upstream face and a hemi-circular weir configuration on the downstream face with a slope ranging from 5 percent at the center of the weir to 3 percent at the banks to provide a slope gradual enough to enable fish passage.[1] That structure was added to the hydraulic model representing the condition with the dam abandoned and removed. This alternative was developed with the intent of maintaining an impoundment level similar to that with the dam in place, while facilitating fish passage.

3A) Dam Abandoned and Removed with a Four-Foot-High Rock Ramp Constructed
This condition was represented by adding a four-foot-high rock ramp across the full width of the Milwaukee River channel at a location approximately 1,600 feet upstream of the dam site. The rock ramp would have a crest elevation of 613.3 feet above NGVD 29, and an overflow length of 230 feet perpendicular to the direction of flow. The rock ramp would have a four horizontal on one vertical slope on its upstream face and a hemi-circular weir configuration on the downstream face with a slope ranging from 3.6 percent at the center of the weir to 2.2 percent at the banks to provide a slope gradual enough to enable fish passage. That structure was added to the hydraulic model representing the condition with the dam abandoned and removed. This alternative was developed with the intent of maintaining an impoundment level, while facilitating fish passage, and would meet regulatory requirements set forth in local zoning ordinances and Chapter NR 116, "Wisconsin's Floodplain Management Program," of the *Wisconsin Administrative Code* that do not permit activities which would increase the 1-percent-annual-probability flood stage unless easements were obtained from all affected property owners and a Conditional Letter of Map Revision (CLOMR) were obtained from FEMA prior to any construction.[2]

4) Gated Spillway Portion of the Dam Abandoned and Removed, Lowered and Rehabilitated Serpentine Overflow Spillway, and a 6.3-Foot-High Rock Ramp Constructed
This condition was represented by adding a 6.3-foot-high rock ramp across the Milwaukee River channel at the location of the removed gated spillway portion of the dam and lowering and rehabilitating the serpentine overflow spillway. The rock ramp would have a crest elevation of 615.4 feet above NGVD 29, an overflow length of 200 feet perpendicular to the direction of flow, a three horizontal on one vertical slope on its upstream face, and a hemi-circular weir configuration on the downstream face with a slope ranging from 5.5 percent at the center of the weir to 3.3 percent at the banks to provide a slope gradual enough to enable fish passage. The crest elevation of the serpentine overflow spillway would be lowered to 615.4 feet above NGVD 29 to match the crest of the 6.3-foot-high rock ramp. With the exception of the lowered crest elevation, the serpentine spillway would be rehabilitated as set forth on the 2011 AECOM plans. This alternative was developed with the intent of facilitating fish passage, and maintaining an impoundment level as close as possible to that with the dam in place, while meeting regulatory requirements set forth in local zoning ordinances and Chapter NR 116, "Wisconsin's Floodplain Management Program," of the *Wisconsin Administrative Code* that do not permit activities which would increase the 1-percent-annual-probability flood stage unless easements were obtained from all affected property owners and a Conditional Letter of Map Revision (CLOMR) were obtained from FEMA prior to any construction.

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[1]*The rock ramp configurations under Alternatives 3, 3A, and 4 were established based on criteria set forth in Reconnecting Rivers: Natural Channel Design in Dam Removal and Fish Passage, 2010 by Luther P. Aadland.*

[2]*As part of a CLOMR application to FEMA it would be necessary to 1) prepare an analysis of alternatives to the proposed project, 2) obtain documentation that all affected municipalities concur with the proposed floodplain changes, 3) provide assurance that no insurable structures are affected by any changes in the 1-percent-probability flood profile, and 4) notify all property owners affected by the changes in the 1-percent-probability flood profile.*

COMPARISON OF RESULTS OF HYDRAULIC ANALYSES

Tables 1 through 5 set forth the results of the normal flow and flood flow profile computations for each of the five alternatives analyzed under normal flow conditions and the 10-, 2-, 1- and 0.2-percent-annual-probability floods. The changes in water surface elevations under the alternatives are compared to the corresponding elevations under the existing conditions model as described above. The estimated potential changes in water surface elevations in the River at storm sewer outfalls for each alternative relative to the existing condition elevation are shown in Tables 1 through 5. The storm sewer outfall locations are indicated in Exhibit 1. For the purposes of the comparisons described herein, except as noted below, the lower reach is defined as the reach between Estabrook dam and W. Hampton Avenue, the middle reach is defined as the reach between W. Hampton Avenue and the abandoned railroad bridge upstream of Lincoln Park, and the upper reach is defined as the reach between the abandoned railroad bridge upstream of Lincoln Park and W. Bender Road. The maximum water depth under normal flow conditions is defined as the difference between the median water surface elevation and the minimum channel elevation at a particular cross-section. Changes in maximum water depths are compared by River reach in Table 6. Changes in the 1-percent-annual-probability water surface elevations are compared by River reach in Table 7.

Comparison and Evaluation of River Water Surface Elevation Changes Under Alternative 1
Alternative 1 water surface elevations are shown in Table 1. As described above, the rehabilitated dam alternative is the same as the existing conditions model. Therefore there is no difference in water surface elevations as compared to existing conditions. Under normal (median) flow conditions, which assume that the Estabrook dam gates are closed, the maximum water depth of the lower reach ranges from 7.4 to 8.7 feet. The maximum depth of the middle reach ranges from 6.3 to 9.2 feet, and the maximum depth of the upper reach ranges from 2.4 to 9.1 feet.

Comparison and Evaluation of River Water Surface Elevation Changes Under Alternative 2
Alternative 2 water surface elevations are shown in Table 2. The dam removal alternative results in a decrease in water surface elevations for each analyzed flow condition relative to existing dam conditions, including at each storm sewer outfall. Under 1-percent-probability flood flow conditions, the water surface elevation in the lower reach would decrease between 0.7 and 1.5 feet as compared to existing conditions. The 1-percent-probability elevation in the middle reach would decrease between 0.5 and 0.7 foot, and the 1-percent-probability elevation in the upper reach would decrease by up to 0.5 foot. Under normal (median) flow conditions, the water surface elevation in the lower reach would decrease between 3.7 and 7.5 feet with a maximum water depth ranging between 0.7 and 2.5 feet. The normal elevation in the middle reach would decrease between 4.5 and 5.4 feet with a maximum water depth ranging between 1.6 and 4.5 feet. The normal elevation in the upper reach would decrease between 0.5 and 4.6 feet with a maximum water depth ranging between 0.8 and 4.5 feet.

Comparison and Evaluation of River Water Surface Elevation Changes Under Alternative 3
Alternative 3 water surface elevations are shown in Table 3. A 5.5-foot-high rock ramp was modeled in order to maximize the normal impoundment level upstream of the ramp while clearly meeting the definition of a dam that would not be regulated under Chapter NR 333, "Dam Design and Construction," of the *Wisconsin Administrative Code.* Chapter NR 333 exempts dams with storage capacities of more than 50 acre-feet (as would be the case for an impoundment created upstream of a 5.5-foot-high rock ramp in the River), but a structural height of six feet or less, assuming the dam is not likely to endanger life, health or property.

While the 5.5-foot-high rock ramp alternative results in a decrease in water surface elevations for the normal (mean and median) flow conditions analyzed relative to existing conditions, including at each storm sewer outfall, it results in an increase in water surface elevations under each of the flood flow conditions analyzed, including the 1-percent-probability flood.

The increases in upstream flood stages under this alternative are caused because, at a given headwater elevation, the hydraulic capacity of the rock ramp would be less than that of Estabrook dam with the vertical lift gates open.

Under 1-percent-probability flood flow conditions, the water surface elevation in the lower reach, defined for this alternative as the reach between the rock ramp and W. Hampton Avenue, would increase between 0.7 and 1.2 feet as compared to existing conditions. The 1-percent-probability elevation in the middle reach would increase between 0.6 and 0.7 foot, and the 1-percent-probability elevation in the upper reach would increase by up to 0.6 foot. Thus, this alternative would not meet regulatory requirements set forth in local zoning ordinances and Chapter NR 116 of the *Wisconsin Administrative Code* that do not permit activities which would increase the 1-percent-annual-probability flood stage unless easements were obtained from all affected property owners and a Conditional Letter of Map Revision (CLOMR) were obtained from FEMA prior to any construction.

Under normal (median) flow conditions, the water surface elevation in the lower reach would decrease 1.6 feet with a maximum water depth ranging between 5.8 and 6.8 feet. The normal elevation in the middle reach would decrease 1.6 feet with a maximum water depth ranging between 4.7 and 7.6 feet. The normal elevation in the upper reach would decrease between 0.5 and 1.6 feet with a maximum water depth ranging between 1.7 and 7.5 feet.

Comparison and Evaluation of River Water Surface Elevation Changes Under Alternative 3A
Since Alternative 3 resulted in an increase in the 1-percent-annual-probability flood flow profile upstream of the rock ramp, an additional rock ramp alternative was analyzed. A four-foot-high rock ramp was modeled in order to maximize the impoundment level upstream of the ramp while not causing an increase in the 1-percent-probability flood profile. The rock ramp slopes of this alternative were reduced as compared with Alternative 3 due to the lower height of the crest and the desire to maintain the same design "foot print" and ramp cross-section locations in order to provide water surface elevation comparisons consistent with Alternatives 1, 2, and 3. The four-foot-high rock ramp would be expected to result in a decrease in water surface elevations for each analyzed flow condition relative to existing dam conditions, including at each storm sewer outfall. Alternative 3A water surface elevations are shown in Table 4.

Under 1-percent-probability flood flow conditions, the water surface elevation in the lower reach, also defined for this alternative as the reach between the rock ramp and W. Hampton Avenue, would decrease between 0.1 and 0.2 foot as compared to existing conditions. The 1-percent-probability elevation in the middle reach would decrease 0.1 foot, and the 1-percent-probability elevation in the upper reach would decrease by up to 0.1 foot. Thus, this alternative would meet regulatory requirements set forth in local zoning ordinances and Chapter NR 116 of the *Wisconsin Administrative Code* that do not permit activities which would increase the 1-percent-annual-probability flood stage unless easements were obtained from all affected property owners and a Conditional Letter of Map Revision (CLOMR) were obtained from FEMA prior to any construction.

Under normal (median) flow conditions, the water surface elevation in the lower reach would decrease 3.1 feet with a maximum water depth ranging between 4.3 and 5.3 feet. The normal elevation in the middle reach would decrease between 2.7 and 3.1 feet with a maximum water depth ranging between 3.6 and 6.5 feet. The normal elevation in the upper reach would decrease between 0.5 and 2.7 feet with a maximum water depth ranging between 1.5 and 6.4 feet.

Comparison and Evaluation of River Water Surface Elevation Changes Under Alternative 4
This alternative was developed to increase the elevation of the impoundment water surface as compared to Alternative 3A, while not causing an increase in the 1-percent-probability flood profile by moving the location of the rock ramp to the site of the removed gated spillway portion of the dam and maintaining the serpentine overflow spillway. Since the overall width of the Milwaukee River is greater at Estabrook Dam than at the location of the rock ramp included under Alternatives 3 and 3A, utilizing both a rock ramp at the gated spillway site and the overflow spillway with a lowered crest in tandem to establish the impoundment level allows for a

greater conveyance capacity at a given headwater elevation to pass flood flows as compared to Alternatives 3 and 3A, while enabling establishment of a higher ramp crest to increase the elevation of the impoundment water surface under normal flow conditions. However, under this alternative, both the 6.3-foot-high rock ramp and the serpentine overflow spillway would meet the definition of a dam that would be regulated under Chapter NR 333.

The 6.3-foot- high rock ramp and lowered overflow spillway alternative would be expected to result in a decrease in water surface elevations upstream of the dam for the normal (mean and median) flow conditions and for the 2-, 1-, and 0.2-percent-probability flood flow conditions relative to existing dam conditions, including at each storm sewer outfall. Under the 10-percent-probability flood it would not be expected to result in hydraulically significant differences in water surface elevations. Alternative 4 water surface elevations are shown in Table 5.

Under 1-percent-probability flood flow conditions, the water surface elevation in the lower reach, would decrease between 0.2 and 0.4 foot as compared to existing conditions. The 1-percent-probability elevation in the middle reach would decrease 0.2 foot, and the 1-percent-probability elevation in the upper reach would decrease by up to 0.2 foot. Thus, this alternative would meet regulatory requirements set forth in local zoning ordinances and Chapter NR 116 of the *Wisconsin Administrative Code* that do not permit activities which would increase the 1-percent-annual-probability flood stage unless easements were be obtained from all affected property owners and a Conditional Letter of Map Revision (CLOMR) were obtained from FEMA prior to any construction.

Under normal (median) flow conditions, the water surface elevation in the lower reach would decrease 1.2 feet with a maximum water depth ranging between 6.2 and 7.5 feet. The normal elevation in the middle reach would decrease 1.2 feet with a maximum water depth ranging between 5.1 and 8.0 feet. The normal elevation in the upper reach would decrease between 0.4 and 1.2 feet with a maximum water depth ranging between 1.9 and 7.9 feet.

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ESTABROOK DAM EA HYDRAULIC ANALYSIS STAFF MEMO, REVISED 04/25/14 (00217296).DOC
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ESTABROOK DAM STORM SEWER INVENTORY TABLES (00217490).DOC
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Table 1

WATER SURFACE PROFILE COMPARISON OF EXISTING DAM CONDITIONS TO ALTERNATIVE PLAN NO. 1: REHABILITATE THE DAM

				500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Lower Reach	**6.827**	**Cross-Section**		621.11	621.11	0.00	619.23	619.23	0.00	618.29	618.29	0.00	616.12	616.12	0.00	609.44	609.44	0.00	609.89	609.89	0.00
	6.8275	Estabrook Park Dam																			
	6.828	Outfall MkeR-7, left		621.65	621.65	0.00	619.96	619.96	0.00	619.17	619.17	0.00	617.50	617.50	0.00	613.17	613.17	0.00	613.51	613.51	0.00
	6.829	**Cross-Section**		622.18	622.18	0.00	620.68	620.68	0.00	620.05	620.05	0.00	618.88	618.88	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	6.843	**Cross-Section**		622.18	622.18	0.00	620.67	620.67	0.00	620.04	620.04	0.00	618.87	618.87	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	6.866	Outfall MkeR-8, right		622.16	622.16	0.00	620.66	620.66	0.00	620.03	620.03	0.00	618.87	618.87	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	6.928	**Cross-Section**		622.10	622.10	0.00	620.63	620.63	0.00	620.01	620.01	0.00	618.87	618.87	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	6.941	**Cross-Section**		622.14	622.14	0.00	620.66	620.66	0.00	620.05	620.05	0.00	618.89	618.89	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	6.96	**Cross-Section**		622.16	622.16	0.00	620.69	620.69	0.00	620.07	620.07	0.00	618.90	618.90	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	6.963	**Cross-Section**		622.17	622.17	0.00	620.70	620.70	0.00	620.08	620.08	0.00	618.91	618.91	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	6.987	**Cross-Section**		622.32	622.32	0.00	620.82	620.82	0.00	620.18	620.18	0.00	618.97	618.97	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	7.087	**Cross-Section**		622.68	622.68	0.00	621.15	621.15	0.00	620.48	620.48	0.00	619.18	619.18	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	7.096	Outfall MkeR-9, left	610.8	622.66	622.66	0.00	621.14	621.14	0.00	620.47	620.47	0.00	619.17	619.17	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	7.098	Outfall MkeR-10, left		622.66	622.66	0.00	621.14	621.14	0.00	620.47	620.47	0.00	619.17	619.17	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	7.103	**Cross-Section**		622.65	622.65	0.00	621.13	621.13	0.00	620.47	620.47	0.00	619.17	619.17	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	7.104	Outfall MkeR-11, right	615.6	622.66	622.66	0.00	621.13	621.13	0.00	620.47	620.47	0.00	619.17	619.17	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	7.104	Outfall MkeR-12, right		622.66	622.66	0.00	621.13	621.13	0.00	620.47	620.47	0.00	619.17	619.17	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	7.11	Port Washington Road																			
	7.117	**Cross-Section**		622.72	622.72	0.00	621.19	621.19	0.00	620.52	620.52	0.00	619.21	619.21	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	7.16	**Cross-Section**		622.81	622.81	0.00	621.28	621.28	0.00	620.60	620.60	0.00	619.27	619.27	0.00	616.89	616.89	0.00	617.12	617.12	0.00
	7.17	IH 43																			
	7.183	**Cross-Section**		622.95	622.95	0.00	621.41	621.41	0.00	620.72	620.72	0.00	619.35	619.35	0.00	616.90	616.90	0.00	617.13	617.13	0.00
	7.189	**Cross-Section**		622.99	622.99	0.00	621.44	621.44	0.00	620.75	620.75	0.00	619.37	619.37	0.00	616.90	616.90	0.00	617.13	617.13	0.00
	7.19	Ramp to IH 43																			
	7.199	**Cross-Section**		623.11	623.11	0.00	621.54	621.54	0.00	620.84	620.84	0.00	619.44	619.44	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.201	Outfall MkeR-13, right		623.11	623.11	0.00	621.54	621.54	0.00	620.84	620.84	0.00	619.44	619.44	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.241	Outfall MkeR-14, right		623.20	623.20	0.00	621.63	621.63	0.00	620.92	620.92	0.00	619.51	619.51	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.359	**Cross-Section**		623.44	623.44	0.00	621.87	621.87	0.00	621.15	621.15	0.00	619.69	619.69	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.519	Outfall MkeR-15, right	629.46	623.91	623.91	0.00	622.31	622.31	0.00	621.57	621.57	0.00	620.01	620.01	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.519	**Cross-Section**		623.91	623.91	0.00	622.31	622.31	0.00	621.57	621.57	0.00	620.01	620.01	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.526	Outfall MkeR-16, right		623.92	623.92	0.00	622.32	622.32	0.00	621.58	621.58	0.00	620.02	620.02	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.576	Outfall MkeR-17, right	618.1	623.99	623.99	0.00	622.40	622.40	0.00	621.66	621.66	0.00	620.08	620.08	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.633	**Cross-Section**		624.07	624.07	0.00	622.48	622.48	0.00	621.74	621.74	0.00	620.15	620.15	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.64	Outfall MkeR-18, right		624.08	624.08	0.00	622.49	622.49	0.00	621.75	621.75	0.00	620.16	620.16	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.654	**Cross-Section**		624.09	624.09	0.00	622.50	622.50	0.00	621.76	621.76	0.00	620.17	620.17	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.656	Outfall MkeR-19, right		624.11	624.11	0.00	622.52	622.52	0.00	621.78	621.78	0.00	620.18	620.18	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.66	Hampton Avenue																			
	7.669	**Cross-Section**		624.26	624.26	0.00	622.65	622.65	0.00	621.89	621.89	0.00	620.26	620.26	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.669	Outfall MkeR-20, right		624.26	624.26	0.00	622.65	622.65	0.00	621.89	621.89	0.00	620.26	620.26	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.706	**Cross-Section**		624.50	624.50	0.00	622.81	622.81	0.00	622.02	622.02	0.00	620.34	620.34	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.745	**Cross-Section**		624.66	624.66	0.00	622.95	622.95	0.00	622.14	622.14	0.00	620.42	620.42	0.00	616.92	616.92	0.00	617.16	617.16	0.00

Table 1 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Middle Reach	**7.851**	**Cross-Section**		624.86	624.86	0.00	623.13	623.13	0.00	622.30	622.30	0.00	620.53	620.53	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.876	**Cross-Section**		624.87	624.87	0.00	623.14	623.14	0.00	622.32	622.32	0.00	620.54	620.54	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.934	**Cross-Section**		624.90	624.90	0.00	623.17	623.17	0.00	622.35	622.35	0.00	620.57	620.57	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.945	Outfall MkeR-21, left		624.90	624.90	0.00	623.17	623.17	0.00	622.35	622.35	0.00	620.57	620.57	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	8.003	**Cross-Section**		624.90	624.90	0.00	623.18	623.18	0.00	622.36	622.36	0.00	620.58	620.58	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	8.098	Outfall MkeR-22, right	613.85	624.93	624.93	0.00	623.21	623.21	0.00	622.39	622.39	0.00	620.61	620.61	0.00	616.92	616.92	0.00	617.17	617.17	0.00
	8.132	**Cross-Section**		624.94	624.94	0.00	623.22	623.22	0.00	622.40	622.40	0.00	620.62	620.62	0.00	616.92	616.92	0.00	617.17	617.17	0.00
	8.141	**Cross-Section**		624.94	624.94	0.00	623.22	623.22	0.00	622.40	622.40	0.00	620.62	620.62	0.00	616.92	616.92	0.00	617.17	617.17	0.00
	8.145	**Cross-Section**		624.94	624.94	0.00	623.22	623.22	0.00	622.41	622.41	0.00	620.63	620.63	0.00	616.92	616.92	0.00	617.17	617.17	0.00
Milwaukee River - Right Split (west oxbow)	**7.8761**	**Cross-Section**		624.83	624.83	0.00	623.09	623.09	0.00	622.27	622.27	0.00	620.49	620.49	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	7.9	Milwaukee River Parkway																			
	7.9341	**Cross-Section**		624.85	624.85	0.00	623.11	623.11	0.00	622.30	622.30	0.00	620.52	620.52	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	8.0031	**Cross-Section**		624.92	624.92	0.00	623.20	623.20	0.00	622.38	622.38	0.00	620.59	620.59	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	8.047	Lincoln Creek Confluence		624.92	624.92	0.00	623.20	623.20	0.00	622.38	622.38	0.00	620.59	620.59	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	8.1321	**Cross-Section**		624.93	624.93	0.00	623.20	623.20	0.00	622.38	622.38	0.00	620.60	620.60	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	8.1411	**Cross-Section**		624.90	624.90	0.00	623.18	623.18	0.00	622.36	622.36	0.00	620.58	620.58	0.00	616.92	616.92	0.00	617.16	617.16	0.00
	8.142	Milwaukee River Parkway																			
	8.1451	**Cross-Section**		624.91	624.91	0.00	623.19	623.19	0.00	622.37	622.37	0.00	620.59	620.59	0.00	616.92	616.92	0.00	617.17	617.17	0.00
Milwaukee River - Upper Reach	**8.229**	**Cross-Section**		624.68	624.68	0.00	623.02	623.02	0.00	622.24	622.24	0.00	620.54	620.54	0.00	616.92	616.92	0.00	617.17	617.17	0.00
	8.244	Outfall MkeR-23, right	615.04	624.71	624.71	0.00	623.05	623.05	0.00	622.27	622.27	0.00	620.57	620.57	0.00	616.92	616.92	0.00	617.17	617.17	0.00
	8.341	**Cross-Section**		624.90	624.90	0.00	623.26	623.26	0.00	622.48	622.48	0.00	620.76	620.76	0.00	616.92	616.92	0.00	617.17	617.17	0.00
	8.343	Outfall MkeR-24, right		624.89	624.89	0.00	623.26	623.26	0.00	622.48	622.48	0.00	620.76	620.76	0.00	616.92	616.92	0.00	617.17	617.17	0.00
	8.357	**Cross-Section**		624.84	624.84	0.00	623.23	623.23	0.00	622.45	622.45	0.00	620.75	620.75	0.00	616.92	616.92	0.00	617.17	617.17	0.00
	8.36	Railroad Bridge																			
	8.366	Outfall MkeR-25, right	613.02	625.02	625.02	0.00	623.37	623.37	0.00	622.58	622.58	0.00	620.85	620.85	0.00	616.95	616.95	0.00	617.19	617.19	0.00
	8.375	**Cross-Section**		625.20	625.20	0.00	623.51	623.51	0.00	622.71	622.71	0.00	620.94	620.94	0.00	616.97	616.97	0.00	617.21	617.21	0.00
	8.381	**Cross-Section**		625.21	625.21	0.00	623.53	623.53	0.00	622.73	622.73	0.00	620.96	620.96	0.00	616.97	616.97	0.00	617.21	617.21	0.00
	8.389	Outfall MkeR-27, left		625.33	625.33	0.00	623.61	623.61	0.00	622.79	622.79	0.00	620.98	620.98	0.00	616.97	616.97	0.00	617.21	617.21	0.00
	8.39	Outfall MkeR-26, right	611.95	625.34	625.34	0.00	623.62	623.62	0.00	622.79	622.79	0.00	620.99	620.99	0.00	616.97	616.97	0.00	617.21	617.21	0.00
	8.394	**Cross-Section**		625.40	625.40	0.00	623.66	623.66	0.00	622.82	622.82	0.00	621.00	621.00	0.00	616.97	616.97	0.00	617.21	617.21	0.00
	8.553	Outfall MkeR-28, left		626.15	626.15	0.00	624.36	624.36	0.00	623.49	623.49	0.00	621.58	621.58	0.00	616.97	616.97	0.00	617.22	617.22	0.00
	8.574	Outfall MkeR-29, right	616.26	626.25	626.25	0.00	624.45	624.45	0.00	623.58	623.58	0.00	621.65	621.65	0.00	616.97	616.97	0.00	617.22	617.22	0.00
	8.579	**Cross-Section**		626.27	626.27	0.00	624.47	624.47	0.00	623.60	623.60	0.00	621.67	621.67	0.00	616.97	616.97	0.00	617.22	617.22	0.00
	8.66	**Cross-Section**		626.73	626.73	0.00	624.88	624.88	0.00	623.99	623.99	0.00	621.98	621.98	0.00	616.98	616.98	0.00	617.23	617.23	0.00
	8.716	**Cross-Section**		626.90	626.90	0.00	625.06	625.06	0.00	624.16	624.16	0.00	622.16	622.16	0.00	616.98	616.98	0.00	617.23	617.23	0.00
	8.73	Outfall MkeR-30, left		626.88	626.88	0.00	625.05	625.05	0.00	624.16	624.16	0.00	622.15	622.15	0.00	616.98	616.98	0.00	617.23	617.23	0.00
	8.73	**Cross-Section**		626.88	626.88	0.00	625.05	625.05	0.00	624.16	624.16	0.00	622.15	622.15	0.00	616.98	616.98	0.00	617.23	617.23	0.00
	8.732	Outfall MkeR-31, right		626.89	626.89	0.00	625.06	625.06	0.00	624.17	624.17	0.00	622.16	622.16	0.00	616.98	616.98	0.00	617.23	617.23	0.00
	8.733	Outfall MkeR-33, left		626.90	626.90	0.00	625.07	625.07	0.00	624.18	624.18	0.00	622.17	622.17	0.00	616.98	616.98	0.00	617.23	617.23	0.00
	8.734	Outfall MkeR-32, right		626.91	626.91	0.00	625.07	625.07	0.00	624.18	624.18	0.00	622.17	622.17	0.00	616.98	616.98	0.00	617.23	617.23	0.00
	8.74	Silver Spring Road																			
	8.759	**Cross-Section**		627.07	627.07	0.00	625.22	625.22	0.00	624.33	624.33	0.00	622.32	622.32	0.00	616.98	616.98	0.00	617.24	617.24	0.00
	8.783	**Cross-Section**		627.14	627.14	0.00	625.29	625.29	0.00	624.39	624.39	0.00	622.39	622.39	0.00	616.98	616.98	0.00	617.25	617.25	0.00
	8.963	**Cross-Section**		627.70	627.70	0.00	625.87	625.87	0.00	624.97	624.97	0.00	622.93	622.93	0.00	616.99	616.99	0.00	617.26	617.26	0.00
	8.966	Outfall MkeR-34, right		627.71	627.71	0.00	625.88	625.88	0.00	624.98	624.98	0.00	622.94	622.94	0.00	616.99	616.99	0.00	617.26	617.26	0.00
	9.125	**Cross-Section**		628.28	628.28	0.00	626.45	626.45	0.00	625.55	625.55	0.00	623.49	623.49	0.00	617.00	617.00	0.00	617.29	617.29	0.00
	9.13	Outfall MkeR-35, left		628.31	628.31	0.00	626.47	626.47	0.00	625.57	625.57	0.00	623.51	623.51	0.00	617.00	617.00	0.00	617.29	617.29	0.00
	9.242	Outfall MkeR-36, left		628.87	628.87	0.00	627.02	627.02	0.00	626.11	626.11	0.00	624.02	624.02	0.00	617.01	617.01	0.00	617.33	617.33	0.00
	9.244	Outfall MkeR-37, right		628.88	628.88	0.00	627.03	627.03	0.00	626.12	626.12	0.00	624.03	624.03	0.00	617.01	617.01	0.00	617.33	617.33	0.00
	9.376	Outfall MkeR-38, left		629.54	629.54	0.00	627.67	627.67	0.00	626.76	626.76	0.00	624.63	624.63	0.00	617.02	617.02	0.00	617.37	617.37	0.00

Table 1 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Upper Reach (continued)	**9.427**	**Cross-Section**		629.79	629.79	0.00	627.92	627.92	0.00	627.00	627.00	0.00	624.86	624.86	0.00	617.03	617.03	0.00	617.39	617.39	0.00
	9.471	Outfall MkeR-40, right		629.94	629.94	0.00	628.07	628.07	0.00	627.15	627.15	0.00	625.01	625.01	0.00	617.04	617.04	0.00	617.42	617.42	0.00
	9.476	Outfall MkeR-39, left		629.95	629.95	0.00	628.09	628.09	0.00	627.17	627.17	0.00	625.03	625.03	0.00	617.04	617.04	0.00	617.42	617.42	0.00
	9.601	Outfall MkeR-41, left		630.37	630.37	0.00	628.51	628.51	0.00	627.59	627.59	0.00	625.45	625.45	0.00	617.07	617.07	0.00	617.49	617.49	0.00
	9.632	Outfall MkeR-42, right		630.47	630.47	0.00	628.61	628.61	0.00	627.69	627.69	0.00	625.55	625.55	0.00	617.08	617.08	0.00	617.51	617.51	0.00
	9.669	**Cross-Section**		630.59	630.59	0.00	628.74	628.74	0.00	627.82	627.82	0.00	625.68	625.68	0.00	617.09	617.09	0.00	617.53	617.53	0.00
	9.834	Outfall MkeR-43, right		631.35	631.35	0.00	629.73	629.73	0.00	628.96	628.96	0.00	627.04	627.04	0.00	617.25	617.25	0.00	617.86	617.86	0.00
	9.846	**Cross-Section**		631.40	631.40	0.00	629.80	629.80	0.00	629.04	629.04	0.00	627.14	627.14	0.00	617.26	617.26	0.00	617.88	617.88	0.00
	9.854	Outfall MkeR-44, left		631.46	631.46	0.00	629.86	629.86	0.00	629.10	629.10	0.00	627.19	627.19	0.00	617.27	617.27	0.00	617.89	617.89	0.00
	9.973	Outfall MkeR-45, right		632.39	632.39	0.00	630.82	630.82	0.00	630.03	630.03	0.00	627.97	627.97	0.00	617.35	617.35	0.00	618.04	618.04	0.00
	10.009	**Cross-Section**		632.67	632.67	0.00	631.11	631.11	0.00	630.31	630.31	0.00	628.20	628.20	0.00	617.38	617.38	0.00	618.08	618.08	0.00
	10.015	Outfall MkeR-46, right		632.75	632.75	0.00	631.17	631.17	0.00	630.37	630.37	0.00	628.24	628.24	0.00	617.38	617.38	0.00	618.08	618.08	0.00
	10.023	**Cross-Section**		632.85	632.85	0.00	631.26	631.26	0.00	630.44	630.44	0.00	628.30	628.30	0.00	617.39	617.39	0.00	618.09	618.09	0.00
	10.025	Outfall MkeR-48, left		632.85	632.85	0.00	631.26	631.26	0.00	630.44	630.44	0.00	628.30	628.30	0.00	617.39	617.39	0.00	618.09	618.09	0.00
	10.038	Outfall MkeR-47, right		632.82	632.82	0.00	631.23	631.23	0.00	630.42	630.42	0.00	628.28	628.28	0.00	617.40	617.40	0.00	618.10	618.10	0.00
	10.04	Bender Road																			
	10.051	**Cross-Section**		632.80	632.80	0.00	631.21	631.21	0.00	630.40	630.40	0.00	628.26	628.26	0.00	617.40	617.40	0.00	618.11	618.11	0.00
Lincoln Creek - Lower Mainstream	**0**	**Cross-Section**		624.92[b]	624.92[b]	0.00	623.20[b]	623.20[b]	0.00	622.38[b]	622.38[b]	0.00	620.59[b]	620.59[b]	0.00						
	0.03	**Cross-Section**		624.92[b]	624.92[b]	0.00	623.20[b]	623.20[b]	0.00	622.38[b]	622.38[b]	0.00	620.59[b]	620.59[b]	0.00						
	0.0303	Outfall LC-1, right		624.92[b]	624.92[b]	0.00	623.20[b]	623.20[b]	0.00	622.38[b]	622.38[b]	0.00	620.59[b]	620.59[b]	0.00						
	0.14	**Cross-Section**		624.92[b]	624.92[b]	0.00	623.20[b]	623.20[b]	0.00	622.38[b]	622.38[b]	0.00	620.59[b]	620.59[b]	0.00						
	0.16	**Cross-Section**		624.92[b]	624.92[b]	0.00	623.20[b]	623.20[b]	0.00	622.38[b]	622.38[b]	0.00	620.59[b]	620.59[b]	0.00						
	0.18	**Cross-Section**		624.92[b]	624.92[b]	0.00	623.20[b]	623.20[b]	0.00	622.38[b]	622.38[b]	0.00	620.59[b]	620.59[b]	0.00						
	0.181	Outfall LC-2, right	612.1	624.92[b]	624.92[b]	0.00	623.20[b]	623.20[b]	0.00	622.38[b]	622.38[b]	0.00	620.59[b]	620.59[b]	0.00						
	0.21	**Cross-Section**		624.92[b]	624.92[b]	0.00	623.20[b]	623.20[b]	0.00	622.38[b]	622.38[b]	0.00	620.59[b]	620.59[b]	0.00						
	0.33	**Cross-Section**		624.92[b]	624.92[b]	0.00	623.20[b]	623.20[b]	0.00	622.38[b]	622.38[b]	0.00	621.04	621.04	0.00						
	0.333	Outfall LC-3, left	614.44	624.92[b]	624.92[b]	0.00	623.20[b]	623.20[b]	0.00	622.38[b]	622.38[b]	0.00	621.07	621.07	0.00						
	0.4	**Cross-Section**		624.92[b]	624.92[b]	0.00	623.50	623.50	0.00	623.00	623.00	0.00	621.71	621.71	0.00						
	0.41	**Cross-Section**		624.92[b]	624.92[b]	0.00	623.52	623.52	0.00	623.03	623.03	0.00	621.73	621.73	0.00						
	0.41	Outfall LC-4, left	614.23	624.92[b]	624.92[b]	0.00	623.52	623.52	0.00	623.03	623.03	0.00	621.73	621.73	0.00						
	0.419	Outfall LC-5, right	616.72	624.92[b]	624.92[b]	0.00	623.62	623.62	0.00	623.03	623.03	0.00	621.73	621.73	0.00						
	0.42	N. Green Bay Avenue																			
	0.43	**Cross-Section**		625.59	625.59	0.00	623.74	623.74	0.00	623.21	623.21	0.00	621.87	621.87	0.00						
	0.44	**Cross-Section**		625.58	625.58	0.00	623.72	623.72	0.00	623.20	623.20	0.00	621.85	621.85	0.00						
	0.47	**Cross-Section**		626.18	626.18	0.00	624.18	624.18	0.00	623.60	623.60	0.00	622.12	622.12	0.00						
	0.5	**Cross-Section**		626.26	626.26	0.00	624.25	624.25	0.00	623.66	623.66	0.00	622.19	622.19	0.00						
	0.54	**Cross-Section**		626.21	626.21	0.00	624.25	624.25	0.00	623.69	623.69	0.00	622.27	622.27	0.00						
	0.6	**Cross-Section**		626.00	626.00	0.00	624.18	624.18	0.00	623.65	623.65	0.00	622.30	622.30	0.00						
	0.61	**Cross-Section**		626.12	626.12	0.00	624.31	624.31	0.00	623.78	623.78	0.00	622.40	622.40	0.00						
	0.62	**Cross-Section**		626.44	626.44	0.00	624.72	624.72	0.00	624.16	624.16	0.00	622.67	622.67	0.00						
	0.631	Outfall LC-6, left	614.76	626.51	626.51	0.00	624.76	624.76	0.00	624.20	624.20	0.00	622.70	622.70	0.00						
	0.71	**Cross-Section**		627.05	627.05	0.00	625.05	625.05	0.00	624.45	624.45	0.00	622.95	622.95	0.00						
	0.75	**Cross-Section**		627.13	627.13	0.00	625.15	625.15	0.00	624.55	624.55	0.00	623.05	623.05	0.00						
	0.79	**Cross-Section**		627.23	627.23	0.00	625.25	625.25	0.00	624.65	624.65	0.00	623.12	623.12	0.00						
	0.794	**Cross-Section**		627.25	627.25	0.00	625.28	625.28	0.00	624.67	624.67	0.00	623.15	623.15	0.00						
	0.798	Outfall LC-7, right	615.47	627.39	627.39	0.00	625.32	625.32	0.00	624.70	624.70	0.00	623.18	623.18	0.00						
	0.799	Outfall LC-8, right	615.46	627.42	627.42	0.00	625.33	625.33	0.00	624.71	624.71	0.00	623.18	623.18	0.00						
	0.803	W. Villard Avenue																			
	0.81	**Cross-Section**		627.79	627.79	0.00	625.43	625.43	0.00	624.79	624.79	0.00	623.26	623.26	0.00						
	0.82	**Cross-Section**		628.12	628.12	0.00	625.57	625.57	0.00	624.91	624.91	0.00	623.33	623.33	0.00						

[b] *Water surface elevation determined using backwater from the confluence with the Right Split (west oxbow) of the Milwaukee River.*

Table 1 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rehab W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Lincoln Creek - Lower Mainstream (continued)	0.848	Outfall LC-10, left	619.6	628.11	628.11	0.00	625.58	625.58	0.00	624.93	624.93	0.00	623.35	623.35	0.00						
	0.877	Outfall LC-9, right	619.17	628.11	628.11	0.00	625.60	625.60	0.00	624.94	624.94	0.00	623.37	623.37	0.00						
	0.909	**Cross-Section**		628.10	628.10	0.00	625.61	625.61	0.00	624.96	624.96	0.00	623.40	623.40	0.00						
	0.912	N. 24th Place Footbridge																			
	0.915	**Cross-Section**		628.22	628.22	0.00	625.64	625.64	0.00	624.98	624.98	0.00	623.42	623.42	0.00						
	0.919	Outfall LC-11, right	619.35	628.25	628.25	0.00	625.65	625.65	0.00	624.99	624.99	0.00	623.44	623.44	0.00						
	0.93	**Cross-Section**		628.34	628.34	0.00	625.69	625.69	0.00	625.03	625.03	0.00	623.48	623.48	0.00						
	0.972	Outfall LC-12, left	617.81	628.44	628.44	0.00	625.82	625.82	0.00	625.15	625.15	0.00	623.61	623.61	0.00						
	0.974	Outfall LC-13, left	617.09	628.44	628.44	0.00	625.83	625.83	0.00	625.16	625.16	0.00	623.61	623.61	0.00						
	0.987	Outfall LC-14, right	619.4	628.47	628.47	0.00	625.87	625.87	0.00	625.19	625.19	0.00	623.65	623.65	0.00						
	1.07	**Cross-Section**		628.67	628.67	0.00	626.12	626.12	0.00	625.43	625.43	0.00	623.90	623.90	0.00						
	1.12	**Cross-Section**		628.92	628.92	0.00	626.45	626.45	0.00	625.77	625.77	0.00	624.19	624.19	0.00						
	1.138	Outfall LC-15, left	616.13	629.04	629.04	0.00	626.60	626.60	0.00	625.90	625.90	0.00	624.32	624.32	0.00						
	1.141	Outfall LC-16, right	621.01	629.06	629.06	0.00	626.63	626.63	0.00	625.93	625.93	0.00	624.34	624.34	0.00						
	1.17	**Cross-Section**		629.25	629.25	0.00	626.87	626.87	0.00	626.14	626.14	0.00	624.54	624.54	0.00						

[a]*References to "left" and "right" are based on looking in the downstream direction.*

[b]*Water surface elevation determined using backwater from the confluence with the Right Split (west oxbow) of the Milwaukee River.*

ESTABROOK DAM STORM SEWER INVENTORY TABLES (00217490).DOC
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Table 2

WATER SURFACE PROFILE COMPARISON OF EXISTING DAM CONDITIONS TO ALTERNATIVE PLAN NO. 2: ABANDON AND REMOVE THE DAM

				500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference |(ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Lower Reach	**6.827**	**Cross-Section**		621.11	621.11	0.00	619.23	619.23	0.00	618.29	618.29	0.00	616.12	616.12	0.00	609.44	609.44	0.00	609.89	609.89	0.00
	6.8275	Estabrook Park Dam																			
	6.828	Outfall MkeR-7, left		621.11	621.65	-0.54	619.23	619.96	-0.73	618.29	619.17	-0.88	616.12	617.50	-1.38	609.44	613.17	-3.73	609.89	613.51	-3.62
	6.829	**Cross-Section**		621.11	622.18	-1.07	619.23	620.68	-1.45	618.29	620.05	-1.76	616.12	618.88	-2.76	609.44	616.89	-7.45	609.89	617.12	-7.23
	6.843	**Cross-Section**		621.11	622.18	-1.07	619.22	620.67	-1.45	618.29	620.04	-1.75	616.12	618.87	-2.75	609.95	616.89	-6.94	610.13	617.12	-6.99
	6.866	Outfall MkeR-8, right		621.09	622.16	-1.07	619.21	620.66	-1.45	618.29	620.03	-1.74	616.14	618.87	-2.73	610.08	616.89	-6.81	610.31	617.12	-6.81
	6.928	**Cross-Section**		621.04	622.10	-1.06	619.19	620.63	-1.44	618.28	620.01	-1.73	616.20	618.87	-2.67	610.43	616.89	-6.46	610.79	617.12	-6.33
	6.941	**Cross-Section**		621.09	622.14	-1.05	619.25	620.66	-1.41	618.35	620.05	-1.70	616.27	618.89	-2.62	610.45	616.89	-6.44	610.81	617.12	-6.31
	6.96	**Cross-Section**		621.12	622.16	-1.04	619.30	620.69	-1.39	618.40	620.07	-1.67	616.34	618.90	-2.56	610.47	616.89	-6.42	610.85	617.12	-6.27
	6.963	**Cross-Section**		621.13	622.17	-1.04	619.31	620.70	-1.39	618.41	620.08	-1.67	616.36	618.91	-2.55	610.48	616.89	-6.41	610.86	617.12	-6.26
	6.987	**Cross-Section**		621.32	622.32	-1.00	619.48	620.82	-1.34	618.58	620.18	-1.60	616.50	618.97	-2.47	610.53	616.89	-6.36	610.93	617.12	-6.19
	7.087	**Cross-Section**		621.79	622.68	-0.89	619.98	621.15	-1.17	619.09	620.48	-1.39	617.07	619.18	-2.11	610.75	616.89	-6.14	611.18	617.12	-5.94
	7.096	Outfall MkeR-9, left	610.8	621.77	622.66	-0.89	619.97	621.14	-1.16	619.08	620.47	-1.39	617.08	619.17	-2.10	610.77	616.89	-6.12	611.20	617.12	-5.92
	7.098	Outfall MkeR-10, left		621.77	622.66	-0.89	619.97	621.14	-1.16	619.08	620.47	-1.39	617.08	619.17	-2.10	610.77	616.89	-6.12	611.20	617.12	-5.92
	7.103	**Cross-Section**		621.76	622.65	-0.89	619.97	621.13	-1.16	619.08	620.47	-1.39	617.08	619.17	-2.09	610.78	616.89	-6.11	611.21	617.12	-5.91
	7.104	Outfall MkeR-11, right	615.6	621.77	622.66	-0.89	619.98	621.13	-1.16	619.09	620.47	-1.39	617.09	619.17	-2.09	610.78	616.89	-6.11	611.21	617.12	-5.91
	7.104	Outfall MkeR-12, right		621.77	622.66	-0.89	619.98	621.13	-1.16	619.09	620.47	-1.39	617.09	619.17	-2.09	610.78	616.89	-6.11	611.21	617.12	-5.91
	7.11	Port Washington Road																			
	7.117	**Cross-Section**		621.85	622.72	-0.87	620.05	621.19	-1.14	619.16	620.52	-1.36	617.16	619.21	-2.05	610.81	616.89	-6.08	611.24	617.12	-5.88
	7.16	**Cross-Section**		621.96	622.81	-0.85	620.18	621.28	-1.10	619.30	620.60	-1.30	617.30	619.27	-1.97	610.87	616.89	-6.02	611.32	617.12	-5.80
	7.17	IH 43																			
	7.183	**Cross-Section**		622.15	622.95	-0.80	620.37	621.41	-1.04	619.48	620.72	-1.24	617.48	619.35	-1.87	610.91	616.90	-5.99	611.37	617.13	-5.76
	7.189	**Cross-Section**		622.19	622.99	-0.80	620.41	621.44	-1.03	619.53	620.75	-1.22	617.53	619.37	-1.84	610.92	616.90	-5.98	611.38	617.13	-5.75
	7.19	Ramp to IH 43																			
	7.199	**Cross-Section**		622.32	623.11	-0.79	620.53	621.54	-1.01	619.65	620.84	-1.19	617.62	619.44	-1.82	610.94	616.92	-5.98	611.41	617.16	-5.75
	7.201	Outfall MkeR-13, right		622.33	623.11	-0.79	620.54	621.54	-1.01	619.66	620.84	-1.19	617.63	619.44	-1.82	610.94	616.92	-5.98	611.41	617.16	-5.75
	7.241	Outfall MkeR-14, right		622.43	623.20	-0.77	620.65	621.63	-0.98	619.78	620.92	-1.15	617.76	619.51	-1.75	611.01	616.92	-5.91	611.49	617.16	-5.67
	7.359	**Cross-Section**		622.74	623.44	-0.70	620.99	621.87	-0.88	620.13	621.15	-1.02	618.14	619.69	-1.55	611.20	616.92	-5.72	611.71	617.16	-5.45
	7.519	Outfall MkeR-15, right	629.46	623.30	623.91	-0.61	621.57	622.31	-0.74	620.71	621.57	-0.86	618.73	620.01	-1.28	611.41	616.92	-5.51	611.97	617.16	-5.19
	7.519	**Cross-Section**		623.30	623.91	-0.61	621.57	622.31	-0.74	620.71	621.57	-0.86	618.73	620.01	-1.28	611.41	616.92	-5.51	611.97	617.16	-5.19
	7.526	Outfall MkeR-16, right		623.31	623.92	-0.61	621.58	622.32	-0.74	620.72	621.58	-0.86	618.74	620.02	-1.27	611.41	616.92	-5.51	611.98	617.16	-5.18
	7.576	Outfall MkeR-17, right	618.1	623.40	623.99	-0.59	621.68	622.40	-0.72	620.83	621.66	-0.83	618.85	620.08	-1.23	611.45	616.92	-5.47	612.03	617.16	-5.13
	7.633	**Cross-Section**		623.50	624.07	-0.57	621.79	622.48	-0.69	620.94	621.74	-0.80	618.97	620.15	-1.18	611.49	616.92	-5.43	612.08	617.16	-5.08
	7.64	Outfall MkeR-18, right		623.51	624.08	-0.57	621.80	622.49	-0.69	620.95	621.75	-0.80	618.98	620.16	-1.18	611.49	616.92	-5.43	612.08	617.16	-5.08
	7.654	**Cross-Section**		623.52	624.09	-0.57	621.82	622.50	-0.68	620.97	621.76	-0.79	619.00	620.17	-1.17	611.50	616.92	-5.42	612.09	617.16	-5.07
	7.656	Outfall MkeR-19, right		623.55	624.11	-0.57	621.84	622.52	-0.68	620.99	621.78	-0.78	619.02	620.18	-1.16	611.50	616.92	-5.42	612.09	617.16	-5.07
	7.66	Hampton Avenue																			
	7.669	**Cross-Section**		623.72	624.26	-0.54	622.00	622.65	-0.65	621.14	621.89	-0.75	619.13	620.26	-1.13	611.53	616.92	-5.39	612.12	617.16	-5.04
	7.669	Outfall MkeR-20, right		623.72	624.26	-0.54	622.00	622.65	-0.65	621.14	621.89	-0.75	619.13	620.26	-1.13	611.53	616.92	-5.39	612.12	617.16	-5.04
	7.706	**Cross-Section**		623.96	624.50	-0.54	622.17	622.81	-0.64	621.28	622.02	-0.74	619.24	620.34	-1.10	611.54	616.92	-5.38	612.14	617.16	-5.02
	7.745	**Cross-Section**		624.14	624.66	-0.52	622.32	622.95	-0.63	621.42	622.14	-0.72	619.35	620.42	-1.07	611.55	616.92	-5.37	612.16	617.16	-5.00

Decreases in water surface elevation relative to existing dam conditions.

Table 2 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference |(ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Middle Reach	**7.851**	**Cross-Section**		624.37	624.86	-0.49	622.53	623.13	-0.60	621.61	622.30	-0.69	619.48	620.53	-1.05	612.19	616.92	-4.73	612.81	617.16	-4.35
	7.876	**Cross-Section**		624.38	624.87	-0.49	622.54	623.14	-0.60	621.63	622.32	-0.69	619.50	620.54	-1.04	612.20	616.92	-4.72	612.83	617.16	-4.33
	7.934	**Cross-Section**		624.41	624.90	-0.49	622.59	623.17	-0.58	621.67	622.35	-0.68	619.55	620.57	-1.02	612.23	616.92	-4.69	612.86	617.16	-4.30
	7.945	Outfall MkeR-21, left		624.41	624.90	-0.49	622.59	623.17	-0.58	621.67	622.35	-0.68	619.55	620.57	-1.02	612.23	616.92	-4.69	612.86	617.16	-4.30
	8.003	**Cross-Section**		624.42	624.90	-0.48	622.60	623.18	-0.58	621.68	622.36	-0.68	619.57	620.58	-1.01	612.26	616.92	-4.66	612.89	617.16	-4.27
	8.098	Outfall MkeR-22, right	613.85	624.45	624.93	-0.48	622.63	623.21	-0.58	621.72	622.39	-0.67	619.61	620.61	-1.00	612.28	616.92	-4.64	612.92	617.17	-4.25
	8.132	**Cross-Section**		624.46	624.94	-0.48	622.64	623.22	-0.58	621.73	622.40	-0.67	619.63	620.62	-0.99	612.29	616.92	-4.63	612.93	617.17	-4.24
	8.141	**Cross-Section**		624.46	624.94	-0.48	622.65	623.22	-0.57	621.74	622.40	-0.66	619.63	620.62	-0.99	612.29	616.92	-4.63	612.94	617.17	-4.23
	8.145	**Cross-Section**		624.47	624.94	-0.47	622.65	623.22	-0.57	621.74	622.41	-0.67	619.64	620.63	-0.99	612.30	616.92	-4.62	612.94	617.17	-4.23
Milwaukee River - Right Split (west oxbow)	**7.8761**	**Cross-Section**		624.33	624.83	-0.50	622.48	623.09	-0.61	621.56	622.27	-0.71	619.43	620.49	-1.06	612.19	616.92	-4.73	612.81	617.16	-4.35
	7.9	Milwaukee River Parkway																			
	7.9341	**Cross-Section**		624.35	624.85	-0.50	622.52	623.11	-0.59	621.60	622.30	-0.70	619.48	620.52	-1.04	612.23	616.92	-4.69	612.86	617.16	-4.30
	8.0031	**Cross-Section**		624.45	624.92	-0.47	622.62	623.20	-0.58	621.71	622.38	-0.67	619.58	620.59	-1.01	612.25	616.92	-4.67	612.89	617.16	-4.27
	8.047	Lincoln Creek Confluence		624.45	624.92	-0.47	622.62	623.20	-0.58	621.71	622.38	-0.67	619.58	620.59	-1.01	612.25	616.92	-4.67	612.89	617.16	-4.27
	8.1321	**Cross-Section**		624.45	624.93	-0.48	622.63	623.20	-0.57	621.71	622.38	-0.67	619.59	620.60	-1.01	612.25	616.92	-4.67	612.89	617.16	-4.27
	8.1411	**Cross-Section**		624.42	624.90	-0.48	622.60	623.18	-0.58	621.69	622.36	-0.67	619.57	620.58	-1.01	612.26	616.92	-4.66	612.90	617.16	-4.26
	8.142	Milwaukee River Parkway																			
	8.1451	**Cross-Section**		624.43	624.91	-0.48	622.61	623.19	-0.58	621.70	622.37	-0.67	619.59	620.59	-1.00	612.29	616.92	-4.63	612.93	617.17	-4.24
Milwaukee River - Upper Reach	**8.229**	**Cross-Section**		624.18	624.68	-0.50	622.43	623.02	-0.59	621.56	622.24	-0.68	619.54	620.54	-1.00	612.34	616.92	-4.58	613.01	617.17	-4.16
	8.244	Outfall MkeR-23, right	615.04	624.21	624.71	-0.49	622.47	623.05	-0.58	621.60	622.27	-0.67	619.59	620.57	-0.98	612.35	616.92	-4.57	613.02	617.17	-4.15
	8.341	**Cross-Section**		624.44	624.90	-0.46	622.73	623.26	-0.53	621.87	622.48	-0.61	619.89	620.76	-0.87	612.38	616.92	-4.54	613.07	617.17	-4.10
	8.343	Outfall MkeR-24, right		624.43	624.89	-0.46	622.73	623.26	-0.53	621.87	622.48	-0.61	619.89	620.76	-0.87	612.38	616.92	-4.54	613.07	617.17	-4.10
	8.357	**Cross-Section**		624.38	624.84	-0.46	622.69	623.23	-0.54	621.85	622.45	-0.60	619.88	620.75	-0.87	612.38	616.92	-4.54	613.08	617.17	-4.09
	8.36	Railroad Bridge																			
	8.366	Outfall MkeR-25, right	613.02	624.58	625.02	-0.44	622.86	623.37	-0.51	622.00	622.58	-0.59	620.00	620.85	-0.85	612.40	616.95	-4.54	613.11	617.19	-4.09
	8.375	**Cross-Section**		624.78	625.20	-0.42	623.02	623.51	-0.49	622.14	622.71	-0.57	620.12	620.94	-0.82	612.42	616.97	-4.55	613.13	617.21	-4.08
	8.381	**Cross-Section**		624.80	625.21	-0.41	623.04	623.53	-0.49	622.17	622.73	-0.56	620.14	620.96	-0.82	612.42	616.97	-4.55	613.13	617.21	-4.08
	8.389	Outfall MkeR-27, left		624.92	625.33	-0.41	623.12	623.61	-0.49	622.23	622.79	-0.56	620.17	620.98	-0.81	612.43	616.97	-4.54	613.13	617.21	-4.08
	8.39	Outfall MkeR-26, right	611.95	624.93	625.34	-0.41	623.13	623.62	-0.49	622.23	622.79	-0.56	620.17	620.99	-0.81	612.43	616.97	-4.54	613.13	617.21	-4.08
	8.394	**Cross-Section**		624.99	625.40	-0.41	623.17	623.66	-0.49	622.26	622.82	-0.56	620.19	621.00	-0.81	612.43	616.97	-4.54	613.13	617.21	-4.08
	8.553	Outfall MkeR-28, left		625.82	626.15	-0.33	623.97	624.36	-0.39	623.05	623.49	-0.44	620.93	621.58	-0.65	612.64	616.97	-4.33	613.36	617.22	-3.86
	8.574	Outfall MkeR-29, right	616.26	625.92	626.25	-0.32	624.07	624.45	-0.37	623.16	623.58	-0.42	621.03	621.65	-0.63	612.67	616.97	-4.30	613.39	617.22	-3.83
	8.579	**Cross-Section**		625.95	626.27	-0.32	624.10	624.47	-0.37	623.18	623.60	-0.42	621.05	621.67	-0.62	612.68	616.97	-4.29	613.40	617.22	-3.82
	8.66	**Cross-Section**		626.44	626.73	-0.29	624.55	624.88	-0.33	623.61	623.99	-0.38	621.44	621.98	-0.54	613.07	616.98	-3.91	613.65	617.23	-3.58
	8.716	**Cross-Section**		626.62	626.90	-0.28	624.74	625.06	-0.32	623.81	624.16	-0.35	621.65	622.16	-0.51	613.43	616.98	-3.55	613.91	617.23	-3.32
	8.73	Outfall MkeR-30, left		626.61	626.88	-0.27	624.73	625.05	-0.32	623.80	624.16	-0.36	621.65	622.15	-0.50	613.50	616.98	-3.48	613.95	617.23	-3.28
	8.73	**Cross-Section**		626.61	626.88	-0.27	624.73	625.05	-0.32	623.80	624.16	-0.36	621.65	622.15	-0.50	613.50	616.98	-3.48	613.95	617.23	-3.28
	8.732	Outfall MkeR-31, right		626.62	626.89	-0.27	624.74	625.06	-0.32	623.81	624.17	-0.36	621.66	622.16	-0.50	613.54	616.98	-3.44	614.00	617.23	-3.23
	8.733	Outfall MkeR-33, left		626.63	626.90	-0.27	624.75	625.07	-0.32	623.82	624.18	-0.36	621.67	622.17	-0.50	613.56	616.98	-3.42	614.02	617.23	-3.21
	8.734	Outfall MkeR-32, right		626.64	626.91	-0.27	624.76	625.07	-0.32	623.83	624.18	-0.36	621.68	622.17	-0.50	613.58	616.98	-3.40	614.04	617.23	-3.19
	8.74	Silver Spring Road																			
	8.759	**Cross-Section**		626.80	627.07	-0.27	624.92	625.22	-0.30	623.99	624.33	-0.34	621.85	622.32	-0.47	614.10	616.98	-2.88	614.62	617.24	-2.62
	8.783	**Cross-Section**		626.87	627.14	-0.27	624.99	625.29	-0.30	624.07	624.39	-0.32	621.94	622.39	-0.45	614.18	616.98	-2.80	614.73	617.25	-2.52
	8.963	**Cross-Section**		627.48	627.70	-0.22	625.62	625.87	-0.25	624.70	624.97	-0.27	622.57	622.93	-0.36	614.30	616.99	-2.69	614.91	617.26	-2.35
	8.966	Outfall MkeR-34, right		627.49	627.71	-0.22	625.63	625.88	-0.25	624.71	624.98	-0.27	622.58	622.94	-0.36	614.30	616.99	-2.69	614.92	617.26	-2.35
	9.125	**Cross-Section**		628.09	628.28	-0.19	626.25	626.45	-0.20	625.34	625.55	-0.21	623.21	623.49	-0.28	614.53	617.00	-2.47	615.19	617.29	-2.10
	9.13	Outfall MkeR-35, left		628.12	628.31	-0.19	626.28	626.47	-0.20	625.37	625.57	-0.21	623.23	623.51	-0.28	614.54	617.00	-2.46	615.20	617.29	-2.09

Decreases in water surface elevation relative to existing dam conditions.

Table 2 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference |(ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Upper Reach (continued)	9.242	Outfall MkeR-36, left		628.70	628.87	-0.16	626.85	627.02	-0.17	625.93	626.11	-0.18	623.79	624.02	-0.23	614.77	617.01	-2.24	615.45	617.33	-1.88
	9.244	Outfall MkeR-37, right		628.71	628.88	-0.16	626.86	627.03	-0.17	625.94	626.12	-0.18	623.80	624.03	-0.23	614.77	617.01	-2.24	615.45	617.33	-1.88
	9.376	Outfall MkeR-38, left		629.40	629.54	-0.13	627.53	627.67	-0.14	626.61	626.76	-0.14	624.45	624.63	-0.18	615.05	617.02	-1.98	615.75	617.37	-1.63
	9.427	**Cross-Section**		629.67	629.79	-0.12	627.79	627.92	-0.13	626.87	627.00	-0.13	624.70	624.86	-0.16	615.15	617.03	-1.88	615.86	617.39	-1.53
	9.471	Outfall MkeR-40, right		629.82	629.94	-0.12	627.94	628.07	-0.12	627.02	627.15	-0.12	624.86	625.01	-0.15	615.28	617.04	-1.77	615.99	617.42	-1.43
	9.476	Outfall MkeR-39, left		629.84	629.95	-0.12	627.96	628.09	-0.12	627.04	627.17	-0.12	624.88	625.03	-0.15	615.29	617.04	-1.75	616.00	617.42	-1.42
	9.601	Outfall MkeR-41, left		630.26	630.37	-0.11	628.40	628.51	-0.11	627.48	627.59	-0.11	625.33	625.45	-0.12	615.65	617.07	-1.43	616.36	617.49	-1.13
	9.632	Outfall MkeR-42, right		630.36	630.47	-0.10	628.51	628.61	-0.10	627.59	627.69	-0.10	625.44	625.55	-0.12	615.73	617.08	-1.35	616.45	617.51	-1.06
	9.669	**Cross-Section**		630.49	630.59	-0.10	628.64	628.74	-0.10	627.72	627.82	-0.10	625.57	625.68	-0.11	615.84	617.09	-1.25	616.56	617.53	-0.97
	9.834	Outfall MkeR-43, right		631.26	631.35	-0.08	629.67	629.73	-0.05	628.91	628.96	-0.04	626.99	627.04	-0.05	616.52	617.25	-0.73	617.32	617.86	-0.53
	9.846	**Cross-Section**		631.32	631.40	-0.08	629.75	629.80	-0.05	629.00	629.04	-0.04	627.09	627.14	-0.05	616.57	617.26	-0.69	617.38	617.88	-0.50
	9.854	Outfall MkeR-44, left		631.38	631.46	-0.08	629.82	629.86	-0.05	629.06	629.10	-0.04	627.14	627.19	-0.05	616.58	617.27	-0.68	617.40	617.89	-0.49
	9.973	Outfall MkeR-45, right		632.35	632.39	-0.04	630.79	630.82	-0.03	630.00	630.03	-0.03	627.92	627.97	-0.04	616.79	617.35	-0.57	617.63	618.04	-0.41
	10.009	**Cross-Section**		632.64	632.67	-0.03	631.08	631.11	-0.03	630.28	630.31	-0.03	628.16	628.20	-0.04	616.85	617.38	-0.53	617.70	618.08	-0.38
	10.015	Outfall MkeR-46, right		632.72	632.75	-0.03	631.14	631.17	-0.03	630.34	630.37	-0.03	628.20	628.24	-0.04	616.85	617.38	-0.53	617.71	618.08	-0.38
	10.023	**Cross-Section**		632.82	632.85	-0.03	631.23	631.26	-0.03	630.42	630.44	-0.02	628.26	628.30	-0.04	616.86	617.39	-0.53	617.72	618.09	-0.37
	10.025	Outfall MkeR-48, left		632.82	632.85	-0.03	631.23	631.26	-0.03	630.42	630.44	-0.02	628.26	628.30	-0.04	616.86	617.39	-0.53	617.72	618.09	-0.37
	10.038	Outfall MkeR-47, right		632.79	632.82	-0.03	631.20	631.23	-0.03	630.39	630.42	-0.03	628.24	628.28	-0.04	616.88	617.40	-0.51	617.74	618.10	-0.36
	10.04	Bender Road																			
	10.051	**Cross-Section**		632.77	632.80	-0.03	631.18	631.21	-0.03	630.37	630.40	-0.03	628.22	628.26	-0.04	616.90	617.40	-0.50	617.75	618.11	-0.36
Lincoln Creek - Lower Mainstream	**0**	**Cross-Section**		624.45[b]	624.92[b]	-0.47	622.62[b]	623.20[b]	-0.58	621.71[b]	622.38[b]	-0.67	619.58[b]	620.59[b]	-1.01						
	0.03	**Cross-Section**		624.45[b]	624.92[b]	-0.47	622.62[b]	623.20[b]	-0.58	621.71[b]	622.38[b]	-0.67	619.58[b]	620.59[b]	-1.01						
	0.0303	Outfall LC-1, right		624.45[b]	624.92[b]	-0.47	622.62[b]	623.20[b]	-0.58	621.71[b]	622.38[b]	-0.67	619.58[b]	620.59[b]	-1.01						
	0.14	**Cross-Section**		624.45[b]	624.92[b]	-0.47	622.62[b]	623.20[b]	-0.58	621.71[b]	622.38[b]	-0.67	619.86	620.59[b]	-0.73						
	0.16	**Cross-Section**		624.45[b]	624.92[b]	-0.47	622.62[b]	623.20[b]	-0.58	621.71[b]	622.38[b]	-0.67	620.07	620.59[b]	-0.52						
	0.18	**Cross-Section**		624.45[b]	624.92[b]	-0.47	622.62[b]	623.20[b]	-0.58	621.71[b]	622.38[b]	-0.67	620.27	620.59[b]	-0.32						
	0.181	Outfall LC-2, right	612.1	624.45[b]	624.92[b]	-0.47	622.62[b]	623.20[b]	-0.58	621.71[b]	622.38[b]	-0.67	620.28	620.59[b]	-0.31						
	0.21	**Cross-Section**		624.45[b]	624.92[b]	-0.47	622.62[b]	623.20[b]	-0.58	621.71[b]	622.38[b]	-0.67	620.42	620.59[b]	-0.17						
	0.33	**Cross-Section**		624.45[b]	624.92[b]	-0.47	622.67	623.20[b]	-0.53	622.22	622.38[b]	-0.16	621.04	621.04	0.00						
	0.333	Outfall LC-3, left	614.44	624.45[b]	624.92[b]	-0.47	622.71	623.20[b]	-0.49	622.25	622.38[b]	-0.13	621.07	621.07	0.00						
	0.4	**Cross-Section**		624.87	624.92[b]	-0.05	623.50	623.50	0.00	623.00	623.00	0.00	621.71	621.71	0.00						
	0.41	**Cross-Section**		624.89	624.92[b]	-0.03	623.52	623.52	0.00	623.03	623.03	0.00	621.73	621.73	0.00						
	0.41	Outfall LC-4, left	614.23	624.89	624.92[b]	-0.03	623.52	623.52	0.00	623.03	623.03	0.00	621.73	621.73	0.00						
	0.419	Outfall LC-5, right	616.72	624.89	624.92[b]	-0.03	623.62	623.62	0.00	623.03	623.03	0.00	621.73	621.73	0.00						
	0.42	N. Green Bay Avenue																			
	0.43	**Cross-Section**		625.59	625.59	0.00	623.74	623.74	0.00	623.21	623.21	0.00	621.87	621.87	0.00						
	0.44	**Cross-Section**		625.58	625.58	0.00	623.72	623.72	0.00	623.20	623.20	0.00	621.85	621.85	0.00						
	0.47	**Cross-Section**		626.18	626.18	0.00	624.18	624.18	0.00	623.60	623.60	0.00	622.12	622.12	0.00						
	0.5	**Cross-Section**		626.26	626.26	0.00	624.25	624.25	0.00	623.66	623.66	0.00	622.19	622.19	0.00						
	0.54	**Cross-Section**		626.21	626.21	0.00	624.25	624.25	0.00	623.69	623.69	0.00	622.27	622.27	0.00						
	0.6	**Cross-Section**		626.00	626.00	0.00	624.18	624.18	0.00	623.65	623.65	0.00	622.30	622.30	0.00						
	0.61	**Cross-Section**		626.12	626.12	0.00	624.31	624.31	0.00	623.78	623.78	0.00	622.40	622.40	0.00						
	0.62	**Cross-Section**		626.44	626.44	0.00	624.72	624.72	0.00	624.16	624.16	0.00	622.67	622.67	0.00						
	0.631	Outfall LC-6, left	614.76	626.51	626.51	0.00	624.76	624.76	0.00	624.20	624.20	0.00	622.70	622.70	0.00						
	0.71	**Cross-Section**		627.05	627.05	0.00	625.05	625.05	0.00	624.45	624.45	0.00	622.95	622.95	0.00						
	0.75	**Cross-Section**		627.13	627.13	0.00	625.15	625.15	0.00	624.55	624.55	0.00	623.05	623.05	0.00						
	0.79	**Cross-Section**		627.23	627.23	0.00	625.25	625.25	0.00	624.65	624.65	0.00	623.12	623.12	0.00						
	0.794	**Cross-Section**		627.25	627.25	0.00	625.28	625.28	0.00	624.67	624.67	0.00	623.15	623.15	0.00						

Decreases in water surface elevation relative to existing dam conditions.

[b] *Water surface elevation determined using backwater from the confluence with the Right Split (west oxbow) of the Milwaukee River.*

Table 2 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference |(ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Removal W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Lincoln Creek - Lower Mainstream (continued)	0.798	Outfall LC-7, right	615.47	627.39	627.39	0.00	625.32	625.32	0.00	624.70	624.70	0.00	623.18	623.18	0.00						
	0.799	Outfall LC-8, right	615.46	627.42	627.42	0.00	625.33	625.33	0.00	624.71	624.71	0.00	623.18	623.18	0.00						
	0.803	W. Villard Avenue																			
	0.81	**Cross-Section**		627.79	627.79	0.00	625.43	625.43	0.00	624.79	624.79	0.00	623.26	623.26	0.00						
	0.82	**Cross-Section**		628.12	628.12	0.00	625.57	625.57	0.00	624.91	624.91	0.00	623.33	623.33	0.00						
	0.848	Outfall LC-10, left	619.6	628.11	628.11	0.00	625.58	625.58	0.00	624.93	624.93	0.00	623.35	623.35	0.00						
	0.877	Outfall LC-9, right	619.17	628.11	628.11	0.00	625.60	625.60	0.00	624.94	624.94	0.00	623.37	623.37	0.00						
	0.909	**Cross-Section**		628.10	628.10	0.00	625.61	625.61	0.00	624.96	624.96	0.00	623.40	623.40	0.00						
	0.912	N. 24th Place Footbridge																			
	0.915	**Cross-Section**		628.22	628.22	0.00	625.64	625.64	0.00	624.98	624.98	0.00	623.42	623.42	0.00						
	0.919	Outfall LC-11, right	619.35	628.25	628.25	0.00	625.65	625.65	0.00	624.99	624.99	0.00	623.44	623.44	0.00						
	0.93	**Cross-Section**		628.34	628.34	0.00	625.69	625.69	0.00	625.03	625.03	0.00	623.48	623.48	0.00						
	0.972	Outfall LC-12, left	617.81	628.44	628.44	0.00	625.82	625.82	0.00	625.15	625.15	0.00	623.61	623.61	0.00						
	0.974	Outfall LC-13, left	617.09	628.44	628.44	0.00	625.83	625.83	0.00	625.16	625.16	0.00	623.61	623.61	0.00						
	0.987	Outfall LC-14, right	619.4	628.47	628.47	0.00	625.87	625.87	0.00	625.19	625.19	0.00	623.65	623.65	0.00						
	1.07	**Cross-Section**		628.67	628.67	0.00	626.12	626.12	0.00	625.43	625.43	0.00	623.90	623.90	0.00						
	1.12	**Cross-Section**		628.92	628.92	0.00	626.45	626.45	0.00	625.77	625.77	0.00	624.19	624.19	0.00						
	1.138	Outfall LC-15, left	616.13	629.04	629.04	0.00	626.60	626.60	0.00	625.90	625.90	0.00	624.32	624.32	0.00						
	1.141	Outfall LC-16, right	621.01	629.06	629.06	0.00	626.63	626.63	0.00	625.93	625.93	0.00	624.34	624.34	0.00						
	1.17	**Cross-Section**		629.25	629.25	0.00	626.87	626.87	0.00	626.14	626.14	0.00	624.54	624.54	0.00						

[a] *References to "left" and "right" are based on looking in the downstream direction.*

[b] *Water surface elevation determined using backwater from the confluence with the Right Split (west oxbow) of the Milwaukee River.*

ESTABROOK DAM STORM SEWER INVENTORY TABLES (00217490).DOC
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Table 3

WATER SURFACE PROFILE COMPARISON OF EXISTING DAM CONDITIONS TO ALTERNATIVE PLAN NO. 3: ABANDON AND REMOVE THE DAM AND PROVIDE A 5.5-FOOT-HIGH ROCK RAMP

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Lower Reach	**6.827**	**Cross-Section**		621.11	621.11	0.00	619.23	619.23	0.00	618.29	618.29	0.00	616.12	616.12	0.00	609.44	609.44	0.00	609.89	609.89	0.00
	6.8275	Estabrook Park Dam																			
	6.828	Outfall MkeR-7, left		621.11	621.65	-0.54	619.23	619.96	-0.73	618.29	619.17	-0.88	616.12	617.50	-1.38	609.44	613.17	-3.73	609.89	613.51	-3.62
	6.829	**Cross-Section**		621.11	622.18	-1.07	619.23	620.68	-1.45	618.29	620.05	-1.76	616.12	618.88	-2.76	609.44	616.89	-7.45	609.89	617.12	-7.23
	6.843	**Cross-Section**		621.11	622.18	-1.07	619.22	620.67	-1.45	618.29	620.04	-1.75	616.12	618.87	-2.75	609.95	616.89	-6.94	610.13	617.12	-6.99
	6.866	Outfall MkeR-8, right		621.09	622.16	-1.07	619.21	620.66	-1.45	618.29	620.03	-1.74	616.14	618.87	-2.73	610.08	616.89	-6.81	610.31	617.12	-6.81
	6.928	**Cross-Section**		621.04	622.10	-1.06	619.19	620.63	-1.44	618.28	620.01	-1.73	616.20	618.87	-2.67	610.43	616.89	-6.46	610.79	617.12	-6.33
	6.941	**Cross-Section - Rock Ramp**		621.08	622.14	-1.06	619.24	620.66	-1.42	618.33	620.05	-1.72	616.25	618.89	-2.64	610.45	616.89	-6.44	610.82	617.12	-6.30
	6.96	**Cross-Section - Rock Ramp**		620.70	622.16	-1.46	619.41	620.69	-1.28	619.00	620.07	-1.07	618.08	618.90	-0.82	615.10	616.89	-1.79	615.26	617.12	-1.86
	6.963	**Cross-Section**		622.91	622.17	0.74	621.85	620.70	1.15	621.28	620.08	1.20	619.93	618.91	1.02	615.30	616.89	-1.59	615.56	617.12	-1.56
	6.987	**Cross-Section**		623.03	622.32	0.71	621.95	620.82	1.13	621.35	620.18	1.17	619.97	618.97	1.00	615.30	616.89	-1.59	615.56	617.12	-1.56
	7.087	**Cross-Section**		623.34	622.68	0.66	622.19	621.15	1.04	621.57	620.48	1.09	620.12	619.18	0.94	615.30	616.89	-1.59	615.56	617.12	-1.56
	7.096	Outfall MkeR-9, left	610.8	623.32	622.66	0.66	622.18	621.14	1.04	621.56	620.47	1.08	620.12	619.17	0.95	615.30	616.89	-1.59	615.56	617.12	-1.56
	7.098	Outfall MkeR-10, left		623.32	622.66	0.66	622.18	621.14	1.04	621.56	620.47	1.08	620.12	619.17	0.95	615.30	616.89	-1.59	615.56	617.12	-1.56
	7.103	**Cross-Section**		623.31	622.65	0.66	622.17	621.13	1.04	621.55	620.47	1.08	620.12	619.17	0.95	615.30	616.89	-1.59	615.56	617.12	-1.56
	7.104	Outfall MkeR-11, right	615.6	623.31	622.66	0.66	622.17	621.13	1.04	621.55	620.47	1.08	620.12	619.17	0.95	615.30	616.89	-1.59	615.56	617.12	-1.56
	7.104	Outfall MkeR-12, right		623.31	622.66	0.66	622.17	621.13	1.04	621.55	620.47	1.08	620.12	619.17	0.95	615.30	616.89	-1.59	615.56	617.12	-1.56
	7.11	Port Washington Road																			
	7.117	**Cross-Section**		623.37	622.72	0.65	622.22	621.19	1.03	621.59	620.52	1.07	620.14	619.21	0.93	615.31	616.89	-1.58	615.57	617.12	-1.55
	7.16	**Cross-Section**		623.45	622.81	0.64	622.28	621.28	1.00	621.65	620.60	1.05	620.18	619.27	0.91	615.31	616.89	-1.58	615.57	617.12	-1.55
	7.17	IH 43																			
	7.183	**Cross-Section**		623.57	622.95	0.62	622.38	621.41	0.97	621.74	620.72	1.02	620.25	619.35	0.90	615.31	616.90	-1.59	615.57	617.13	-1.56
	7.189	**Cross-Section**		623.60	622.99	0.61	622.41	621.44	0.97	621.77	620.75	1.02	620.26	619.37	0.89	615.31	616.90	-1.59	615.57	617.13	-1.56
	7.19	Ramp to IH 43																			
	7.199	**Cross-Section**		623.71	623.11	0.60	622.50	621.54	0.96	621.85	620.84	1.01	620.33	619.44	0.89	615.32	616.92	-1.60	615.59	617.16	-1.57
	7.201	Outfall MkeR-13, right		623.71	623.11	0.60	622.50	621.54	0.96	621.85	620.84	1.01	620.33	619.44	0.89	615.32	616.92	-1.60	615.59	617.16	-1.57
	7.241	Outfall MkeR-14, right		623.78	623.20	0.59	622.57	621.63	0.94	621.91	620.92	0.99	620.38	619.51	0.87	615.32	616.92	-1.60	615.59	617.16	-1.57
	7.359	**Cross-Section**		623.99	623.44	0.55	622.75	621.87	0.88	622.08	621.15	0.93	620.51	619.69	0.82	615.32	616.92	-1.60	615.59	617.16	-1.57
	7.519	Outfall MkeR-15, right	629.46	624.40	623.91	0.49	623.09	622.31	0.78	622.39	621.57	0.82	620.74	620.01	0.73	615.33	616.92	-1.59	615.60	617.16	-1.56
	7.519	**Cross-Section**		624.40	623.91	0.49	623.09	622.31	0.78	622.39	621.57	0.82	620.74	620.01	0.73	615.33	616.92	-1.59	615.60	617.16	-1.56
	7.526	Outfall MkeR-16, right		624.41	623.92	0.49	623.10	622.32	0.78	622.40	621.58	0.82	620.75	620.02	0.73	615.33	616.92	-1.59	615.60	617.16	-1.56
	7.576	Outfall MkeR-17, right	618.1	624.47	623.99	0.47	623.16	622.40	0.76	622.45	621.66	0.79	620.80	620.08	0.72	615.33	616.92	-1.59	615.60	617.16	-1.56
	7.633	**Cross-Section**		624.53	624.07	0.46	623.22	622.48	0.74	622.51	621.74	0.77	620.85	620.15	0.70	615.33	616.92	-1.59	615.60	617.16	-1.56
	7.64	Outfall MkeR-18, right		624.54	624.08	0.46	623.23	622.49	0.74	622.52	621.75	0.77	620.85	620.16	0.70	615.33	616.92	-1.59	615.60	617.16	-1.56
	7.654	**Cross-Section**		624.55	624.09	0.46	623.24	622.50	0.74	622.53	621.76	0.77	620.86	620.17	0.69	615.33	616.92	-1.59	615.60	617.16	-1.56
	7.656	Outfall MkeR-19, right		624.57	624.11	0.46	623.26	622.52	0.74	622.54	621.78	0.77	620.87	620.18	0.69	615.33	616.92	-1.59	615.60	617.16	-1.56
	7.66	Hampton Avenue																			
	7.669	**Cross-Section**		624.70	624.26	0.44	623.36	622.65	0.71	622.64	621.89	0.75	620.94	620.26	0.68	615.33	616.92	-1.59	615.60	617.16	-1.56
	7.669	Outfall MkeR-20, right		624.70	624.26	0.44	623.36	622.65	0.71	622.64	621.89	0.75	620.94	620.26	0.68	615.33	616.92	-1.59	615.60	617.16	-1.56
	7.706	**Cross-Section**		624.94	624.50	0.44	623.51	622.81	0.70	622.76	622.02	0.74	621.01	620.34	0.67	615.33	616.92	-1.59	615.60	617.16	-1.56
	7.745	**Cross-Section**		625.08	624.66	0.42	623.63	622.95	0.68	622.86	622.14	0.72	621.08	620.42	0.66	615.33	616.92	-1.59	615.60	617.16	-1.56

Decreases in water surface elevation relative to existing dam conditions.

Increases in water surface elevation relative to existing dam conditions.

Table 3 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Middle Reach	**7.851**	**Cross-Section**		625.26	624.86	0.40	623.79	623.13	0.66	623.00	622.30	0.70	621.17	620.53	0.64	615.33	616.92	-1.59	615.61	617.16	-1.55
	7.876	**Cross-Section**		625.27	624.87	0.40	623.79	623.14	0.65	623.01	622.32	0.69	621.18	620.54	0.64	615.33	616.92	-1.59	615.61	617.16	-1.55
	7.934	**Cross-Section**		625.30	624.90	0.40	623.82	623.17	0.65	623.04	622.35	0.69	621.20	620.57	0.63	615.33	616.92	-1.59	615.61	617.16	-1.55
	7.945	Outfall MkeR-21, left		625.30	624.90	0.40	623.82	623.17	0.65	623.04	622.35	0.69	621.20	620.57	0.63	615.33	616.92	-1.59	615.61	617.16	-1.55
	8.003	**Cross-Section**		625.30	624.90	0.40	623.83	623.18	0.65	623.04	622.36	0.68	621.21	620.58	0.63	615.33	616.92	-1.59	615.61	617.16	-1.55
	8.098	Outfall MkeR-22, right	613.85	625.32	624.93	0.39	623.85	623.21	0.64	623.06	622.39	0.67	621.23	620.61	0.62	615.33	616.92	-1.59	615.61	617.17	-1.56
	8.132	**Cross-Section**		625.33	624.94	0.39	623.86	623.22	0.64	623.07	622.40	0.67	621.24	620.62	0.62	615.33	616.92	-1.59	615.61	617.17	-1.56
	8.141	**Cross-Section**		625.34	624.94	0.40	623.86	623.22	0.64	623.07	622.40	0.67	621.24	620.62	0.62	615.33	616.92	-1.59	615.61	617.17	-1.56
	8.145	**Cross-Section**		625.34	624.94	0.40	623.86	623.22	0.64	623.08	622.41	0.67	621.24	620.63	0.61	615.33	616.92	-1.59	615.61	617.17	-1.56
Milwaukee River - Right Split (west oxbow)	**7.8761**	**Cross-Section**		625.24	624.83	0.41	623.75	623.09	0.66	622.96	622.27	0.69	621.14	620.49	0.65	615.33	616.92	-1.59	615.60	617.16	-1.56
	7.9	Milwaukee River Parkway																			
	7.9341	**Cross-Section**		625.26	624.85	0.41	623.78	623.11	0.67	622.99	622.30	0.69	621.16	620.52	0.64	615.33	616.92	-1.59	615.61	617.16	-1.55
	8.0031	**Cross-Section**		625.32	624.92	0.40	623.84	623.20	0.64	623.06	622.38	0.68	621.23	620.59	0.64	615.33	616.92	-1.59	615.61	617.16	-1.55
	8.047	Lincoln Creek Confluence		625.32	624.92	0.40	623.84	623.20	0.64	623.06	622.38	0.68	621.23	620.59	0.64	615.33	616.92	-1.59	615.61	617.16	-1.55
	8.1321	**Cross-Section**		625.33	624.93	0.40	623.85	623.20	0.65	623.07	622.38	0.69	621.23	620.60	0.63	615.33	616.92	-1.59	615.61	617.16	-1.55
	8.1411	**Cross-Section**		625.30	624.90	0.40	623.83	623.18	0.65	623.05	622.36	0.69	621.22	620.58	0.64	615.33	616.92	-1.59	615.61	617.16	-1.55
	8.142	Milwaukee River Parkway																			
	8.1451	**Cross-Section**		625.31	624.91	0.40	623.83	623.19	0.64	623.05	622.37	0.68	621.22	620.59	0.63	615.33	616.92	-1.59	615.61	617.17	-1.56
Milwaukee River - Upper Reach	**8.229**	**Cross-Section**		625.08	624.68	0.40	623.68	623.02	0.66	622.92	622.24	0.68	621.15	620.54	0.61	615.33	616.92	-1.59	615.61	617.17	-1.56
	8.244	Outfall MkeR-23, right	615.04	625.11	624.71	0.40	623.71	623.05	0.65	622.95	622.27	0.67	621.17	620.57	0.60	615.33	616.92	-1.59	615.61	617.17	-1.56
	8.341	**Cross-Section**		625.28	624.90	0.38	623.87	623.26	0.61	623.11	622.48	0.63	621.33	620.76	0.57	615.33	616.92	-1.59	615.62	617.17	-1.55
	8.343	Outfall MkeR-24, right		625.27	624.89	0.38	623.87	623.26	0.61	623.11	622.48	0.63	621.33	620.76	0.57	615.33	616.92	-1.59	615.62	617.17	-1.55
	8.357	**Cross-Section**		625.22	624.84	0.38	623.83	623.23	0.60	623.08	622.45	0.63	621.32	620.75	0.57	615.33	616.92	-1.59	615.62	617.17	-1.55
	8.36	Railroad Bridge																			
	8.366	Outfall MkeR-25, right	613.02	625.39	625.02	0.37	623.96	623.37	0.59	623.20	622.58	0.61	621.41	620.85	0.56	615.36	616.95	-1.59	615.65	617.19	-1.55
	8.375	**Cross-Section**		625.55	625.20	0.35	624.08	623.51	0.57	623.31	622.71	0.60	621.49	620.94	0.55	615.38	616.97	-1.59	615.67	617.21	-1.54
	8.381	**Cross-Section**		625.57	625.21	0.36	624.10	623.53	0.57	623.32	622.73	0.59	621.50	620.96	0.54	615.38	616.97	-1.59	615.67	617.21	-1.54
	8.389	Outfall MkeR-27, left		625.67	625.33	0.35	624.17	623.61	0.56	623.38	622.79	0.59	621.53	620.98	0.55	615.38	616.97	-1.59	615.67	617.21	-1.54
	8.39	Outfall MkeR-26, right	611.95	625.69	625.34	0.35	624.18	623.62	0.56	623.38	622.79	0.59	621.53	620.99	0.55	615.38	616.97	-1.59	615.67	617.21	-1.54
	8.394	**Cross-Section**		625.74	625.40	0.34	624.21	623.66	0.55	623.41	622.82	0.59	621.55	621.00	0.55	615.38	616.97	-1.59	615.67	617.21	-1.54
	8.553	Outfall MkeR-28, left		626.44	626.15	0.29	624.82	624.36	0.46	623.99	623.49	0.50	622.03	621.58	0.46	615.39	616.97	-1.58	615.69	617.22	-1.53
	8.574	Outfall MkeR-29, right	616.26	626.53	626.25	0.28	624.90	624.45	0.45	624.06	623.58	0.48	622.09	621.65	0.44	615.39	616.97	-1.58	615.69	617.22	-1.53
	8.579	**Cross-Section**		626.55	626.27	0.28	624.92	624.47	0.45	624.08	623.60	0.48	622.11	621.67	0.44	615.39	616.97	-1.58	615.69	617.22	-1.53
	8.66	**Cross-Section**		626.98	626.73	0.25	625.29	624.88	0.41	624.42	623.99	0.43	622.38	621.98	0.40	615.39	616.98	-1.59	615.71	617.23	-1.52
	8.716	**Cross-Section**		627.14	626.90	0.24	625.45	625.06	0.39	624.57	624.16	0.41	622.53	622.16	0.37	615.40	616.98	-1.58	615.72	617.23	-1.51
	8.73	Outfall MkeR-30, left		627.12	626.88	0.24	625.44	625.05	0.39	624.56	624.16	0.40	622.53	622.15	0.38	615.40	616.98	-1.58	615.72	617.23	-1.51
	8.73	**Cross-Section**		627.12	626.88	0.24	625.44	625.05	0.39	624.56	624.16	0.40	622.53	622.15	0.38	615.40	616.98	-1.58	615.72	617.23	-1.51
	8.732	Outfall MkeR-31, right		627.13	626.89	0.24	625.45	625.06	0.39	624.57	624.17	0.40	622.54	622.16	0.38	615.40	616.98	-1.58	615.72	617.23	-1.51
	8.733	Outfall MkeR-33, left		627.14	626.90	0.24	625.46	625.07	0.39	624.58	624.18	0.40	622.54	622.17	0.38	615.40	616.98	-1.58	615.72	617.23	-1.51
	8.734	Outfall MkeR-32, right		627.15	626.91	0.24	625.46	625.07	0.39	624.58	624.18	0.40	622.55	622.17	0.38	615.40	616.98	-1.58	615.73	617.23	-1.51
	8.74	Silver Spring Road																			
	8.759	**Cross-Section**		627.31	627.07	0.24	625.60	625.22	0.38	624.72	624.33	0.39	622.67	622.32	0.35	615.42	616.98	-1.56	615.76	617.24	-1.48
	8.783	**Cross-Section**		627.37	627.14	0.23	625.65	625.29	0.36	624.77	624.39	0.38	622.73	622.39	0.34	615.43	616.98	-1.55	615.78	617.25	-1.47
	8.963	**Cross-Section**		627.91	627.70	0.21	626.18	625.87	0.31	625.29	624.97	0.32	623.22	622.93	0.29	615.45	616.99	-1.54	615.84	617.26	-1.42
	8.966	Outfall MkeR-34, right		627.92	627.71	0.21	626.19	625.88	0.31	625.30	624.98	0.32	623.23	622.94	0.29	615.45	616.99	-1.54	615.84	617.26	-1.42

Decreases in water surface elevation relative to existing dam conditions.

Increases in water surface elevation relative to existing dam conditions.

Table 3 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Upper Reach (continued)	**9.125**	**Cross-Section**		628.45	628.28	0.17	626.71	626.45	0.26	625.82	625.55	0.27	623.72	623.49	0.23	615.49	617.00	-1.51	615.94	617.29	-1.35
	9.13	Outfall MkeR-35, left		628.47	628.31	0.17	626.73	626.47	0.26	625.84	625.57	0.27	623.74	623.51	0.23	615.49	617.00	-1.51	615.95	617.29	-1.35
	9.242	Outfall MkeR-36, left		629.02	628.87	0.15	627.24	627.02	0.23	626.34	626.11	0.23	624.22	624.02	0.20	615.56	617.01	-1.45	616.06	617.33	-1.26
	9.244	Outfall MkeR-37, right		629.03	628.88	0.15	627.25	627.03	0.22	626.35	626.12	0.23	624.22	624.03	0.19	615.56	617.01	-1.45	616.07	617.33	-1.26
	9.376	Outfall MkeR-38, left		629.66	629.54	0.13	627.86	627.67	0.19	626.94	626.76	0.19	624.78	624.63	0.16	615.64	617.02	-1.39	616.21	617.37	-1.17
	9.427	**Cross-Section**		629.91	629.79	0.12	628.09	627.92	0.17	627.17	627.00	0.17	625.00	624.86	0.14	615.67	617.03	-1.36	616.26	617.39	-1.13
	9.471	Outfall MkeR-40, right		630.05	629.94	0.11	628.23	628.07	0.16	627.31	627.15	0.16	625.14	625.01	0.13	615.73	617.04	-1.31	616.34	617.42	-1.07
	9.476	Outfall MkeR-39, left		630.07	629.95	0.11	628.25	628.09	0.16	627.33	627.17	0.16	625.16	625.03	0.13	615.73	617.04	-1.31	616.35	617.42	-1.07
	9.601	Outfall MkeR-41, left		630.46	630.37	0.10	628.65	628.51	0.14	627.73	627.59	0.14	625.56	625.45	0.11	615.90	617.07	-1.17	616.58	617.49	-0.91
	9.632	Outfall MkeR-42, right		630.56	630.47	0.09	628.75	628.61	0.14	627.83	627.69	0.14	625.66	625.55	0.11	615.94	617.08	-1.14	616.64	617.51	-0.87
	9.669	**Cross-Section**		630.68	630.59	0.09	628.87	628.74	0.13	627.95	627.82	0.13	625.78	625.68	0.10	615.99	617.09	-1.10	616.71	617.53	-0.82
	9.834	Outfall MkeR-43, right		631.41	631.35	0.06	629.80	629.73	0.07	629.02	628.96	0.06	627.09	627.04	0.05	616.56	617.25	-0.69	617.38	617.86	-0.48
	9.846	**Cross-Section**		631.46	631.40	0.06	629.87	629.80	0.07	629.10	629.04	0.06	627.19	627.14	0.05	616.60	617.26	-0.66	617.43	617.88	-0.45
	9.854	Outfall MkeR-44, left		631.52	631.46	0.06	629.93	629.86	0.07	629.16	629.10	0.06	627.24	627.19	0.05	616.61	617.27	-0.65	617.44	617.89	-0.45
	9.973	Outfall MkeR-45, right		632.43	632.39	0.04	630.87	630.82	0.05	630.07	630.03	0.04	628.00	627.97	0.03	616.81	617.35	-0.54	617.66	618.04	-0.37
	10.009	**Cross-Section**		632.71	632.67	0.04	631.15	631.11	0.04	630.35	630.31	0.04	628.23	628.20	0.03	616.87	617.38	-0.51	617.73	618.08	-0.35
	10.015	Outfall MkeR-46, right		632.79	632.75	0.04	631.21	631.17	0.04	630.41	630.37	0.04	628.28	628.24	0.03	616.88	617.38	-0.51	617.74	618.08	-0.35
	10.023	**Cross-Section**		632.89	632.85	0.04	631.30	631.26	0.04	630.48	630.44	0.04	628.34	628.30	0.04	616.89	617.39	-0.50	617.75	618.09	-0.34
	10.025	Outfall MkeR-48, left		632.89	632.85	0.04	631.30	631.26	0.04	630.48	630.44	0.04	628.34	628.30	0.04	616.89	617.39	-0.50	617.75	618.09	-0.34
	10.038	Outfall MkeR-47, right		632.86	632.82	0.03	631.27	631.23	0.04	630.45	630.42	0.03	628.31	628.28	0.03	616.91	617.40	-0.49	617.77	618.10	-0.33
	10.04	Bender Road																			
	10.051	**Cross-Section**		632.83	632.80	0.03	631.25	631.21	0.04	630.43	630.40	0.03	628.29	628.26	0.03	616.92	617.40	-0.48	617.78	618.11	-0.33
Lincoln Creek - Lower Mainstream	**0**	**Cross-Section**		625.32[b]	624.92[b]	0.40	623.84[b]	623.20[b]	0.64	623.06[b]	622.38[b]	0.68	621.23[b]	620.59[b]	0.64						
	0.03	**Cross-Section**		625.32[b]	624.92[b]	0.40	623.84[b]	623.20[b]	0.64	623.06[b]	622.38[b]	0.68	621.23[b]	620.59[b]	0.64						
	0.0303	Outfall LC-1, right		625.32[b]	624.92[b]	0.40	623.84[b]	623.20[b]	0.64	623.06[b]	622.38[b]	0.68	621.23[b]	620.59[b]	0.64						
	0.14	**Cross-Section**		625.32[b]	624.92[b]	0.40	623.84[b]	623.20[b]	0.64	623.06[b]	622.38[b]	0.68	621.23[b]	620.59[b]	0.64						
	0.16	**Cross-Section**		625.32[b]	624.92[b]	0.40	623.84[b]	623.20[b]	0.64	623.06[b]	622.38[b]	0.68	621.23[b]	620.59[b]	0.64						
	0.18	**Cross-Section**		625.32[b]	624.92[b]	0.40	623.84[b]	623.20[b]	0.64	623.06[b]	622.38[b]	0.68	621.23[b]	620.59[b]	0.64						
	0.181	Outfall LC-2, right	612.1	625.32[b]	624.92[b]	0.40	623.84[b]	623.20[b]	0.64	623.06[b]	622.38[b]	0.68	621.23[b]	620.59[b]	0.64						
	0.21	**Cross-Section**		625.32[b]	624.92[b]	0.40	623.84[b]	623.20[b]	0.64	623.06[b]	622.38[b]	0.68	621.23[b]	620.59[b]	0.64						
	0.33	**Cross-Section**		625.32[b]	624.92[b]	0.40	623.84[b]	623.20[b]	0.64	623.06[b]	622.38[b]	0.68	621.23[b]	621.04	0.19						
	0.333	Outfall LC-3, left	614.44	625.32[b]	624.92[b]	0.40	623.84[b]	623.20[b]	0.64	623.06[b]	622.38[b]	0.68	621.23[b]	621.07	0.16						
	0.4	**Cross-Section**		625.32[b]	624.92[b]	0.40	623.84[b]	623.50	0.34	623.06[b]	623.00	0.06	621.71	621.71	0.00						
	0.41	**Cross-Section**		625.32[b]	624.92[b]	0.40	623.84[b]	623.52	0.32	623.06[b]	623.03	0.03	621.73	621.73	0.00						
	0.41	Outfall LC-4, left	614.23	625.32[b]	624.92[b]	0.40	623.84[b]	623.52	0.32	623.06[b]	623.03	0.03	621.73	621.73	0.00						
	0.419	Outfall LC-5, right	616.72	625.32[b]	624.92[b]	0.40	623.84[b]	623.62	0.32	623.06[b]	623.03	0.03	621.73	621.73	0.00						
	0.42	N. Green Bay Avenue																			
	0.43	**Cross-Section**		625.59	625.59	0.00	623.84[b]	623.74	0.10	623.21	623.21	0.00	621.87	621.87	0.00						
	0.44	**Cross-Section**		625.58	625.58	0.00	623.84[b]	623.72	0.12	623.20	623.20	0.00	621.85	621.85	0.00						
	0.47	**Cross-Section**		626.18	626.18	0.00	624.18	624.18	0.00	623.60	623.60	0.00	622.12	622.12	0.00						
	0.5	**Cross-Section**		626.26	626.26	0.00	624.25	624.25	0.00	623.66	623.66	0.00	622.19	622.19	0.00						
	0.54	**Cross-Section**		626.21	626.21	0.00	624.25	624.25	0.00	623.69	623.69	0.00	622.27	622.27	0.00						
	0.6	**Cross-Section**		626.00	626.00	0.00	624.18	624.18	0.00	623.65	623.65	0.00	622.30	622.30	0.00						
	0.61	**Cross-Section**		626.12	626.12	0.00	624.31	624.31	0.00	623.78	623.78	0.00	622.40	622.40	0.00						
	0.62	**Cross-Section**		626.44	626.44	0.00	624.72	624.72	0.00	624.16	624.16	0.00	622.67	622.67	0.00						
	0.631	Outfall LC-6, left	614.76	626.51	626.51	0.00	624.76	624.76	0.00	624.20	624.20	0.00	622.70	622.70	0.00						

Decreases in water surface elevation relative to existing dam conditions.

Increases in water surface elevation relative to existing dam conditions.

[b] *Water surface elevation determined using backwater from the confluence with the Right Split (west oxbow) of the Milwaukee River.*

Table 3 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Dam Rem. w/Rock Ramp W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Lincoln Creek - Lower Mainstream (continued)	**0.71**	**Cross-Section**		627.05	627.05	0.00	625.05	625.05	0.00	624.45	624.45	0.00	622.95	622.95	0.00						
	0.75	**Cross-Section**		627.13	627.13	0.00	625.15	625.15	0.00	624.55	624.55	0.00	623.05	623.05	0.00						
	0.79	**Cross-Section**		627.23	627.23	0.00	625.25	625.25	0.00	624.65	624.65	0.00	623.12	623.12	0.00						
	0.794	**Cross-Section**		627.25	627.25	0.00	625.28	625.28	0.00	624.67	624.67	0.00	623.15	623.15	0.00						
	0.798	Outfall LC-7, right	615.47	627.39	627.39	0.00	625.32	625.32	0.00	624.70	624.70	0.00	623.18	623.18	0.00						
	0.799	Outfall LC-8, right	615.46	627.42	627.42	0.00	625.33	625.33	0.00	624.71	624.71	0.00	623.18	623.18	0.00						
	0.803	W. Villard Avenue																			
	0.81	**Cross-Section**		627.79	627.79	0.00	625.43	625.43	0.00	624.79	624.79	0.00	623.26	623.26	0.00						
	0.82	**Cross-Section**		628.12	628.12	0.00	625.57	625.57	0.00	624.91	624.91	0.00	623.33	623.33	0.00						
	0.848	Outfall LC-10, left	619.6	628.11	628.11	0.00	625.58	625.58	0.00	624.93	624.93	0.00	623.35	623.35	0.00						
	0.877	Outfall LC-9, right	619.17	628.11	628.11	0.00	625.60	625.60	0.00	624.94	624.94	0.00	623.37	623.37	0.00						
	0.909	**Cross-Section**		628.10	628.10	0.00	625.61	625.61	0.00	624.96	624.96	0.00	623.40	623.40	0.00						
	0.912	N. 24th Place Footbridge																			
	0.915	**Cross-Section**		628.22	628.22	0.00	625.64	625.64	0.00	624.98	624.98	0.00	623.42	623.42	0.00						
	0.919	Outfall LC-11, right	619.35	628.25	628.25	0.00	625.65	625.65	0.00	624.99	624.99	0.00	623.44	623.44	0.00						
	0.93	**Cross-Section**		628.34	628.34	0.00	625.69	625.69	0.00	625.03	625.03	0.00	623.48	623.48	0.00						
	0.972	Outfall LC-12, left	617.81	628.44	628.44	0.00	625.82	625.82	0.00	625.15	625.15	0.00	623.61	623.61	0.00						
	0.974	Outfall LC-13, left	617.09	628.44	628.44	0.00	625.83	625.83	0.00	625.16	625.16	0.00	623.61	623.61	0.00						
	0.987	Outfall LC-14, right	619.4	628.47	628.47	0.00	625.87	625.87	0.00	625.19	625.19	0.00	623.65	623.65	0.00						
	1.07	**Cross-Section**		628.67	628.67	0.00	626.12	626.12	0.00	625.43	625.43	0.00	623.90	623.90	0.00						
	1.12	**Cross-Section**		628.92	628.92	0.00	626.45	626.45	0.00	625.77	625.77	0.00	624.19	624.19	0.00						
	1.138	Outfall LC-15, left	616.13	629.04	629.04	0.00	626.60	626.60	0.00	625.90	625.90	0.00	624.32	624.32	0.00						
	1.141	Outfall LC-16, right	621.01	629.06	629.06	0.00	626.63	626.63	0.00	625.93	625.93	0.00	624.34	624.34	0.00						
	1.17	**Cross-Section**		629.25	629.25	0.00	626.87	626.87	0.00	626.14	626.14	0.00	624.54	624.54	0.00						

[a] *References to "left" and "right" are based on looking in the downstream direction.*

[b] *Water surface elevation determined using backwater from the confluence with the Right Split (west oxbow) of the Milwaukee River.*

ESTABROOK DAM STORM SEWER INVENTORY TABLES (00217490).DOC
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Table 4

WATER SURFACE PROFILE COMPARISON OF EXISTING DAM CONDITIONS TO ALTERNATIVE PLAN NO. 3A: ABANDON AND REMOVE THE DAM AND PROVIDE A 4-FOOT-HIGH ROCK RAMP

				500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Lower Reach	**6.827**	**Cross-Section**		621.11	621.11	0.00	619.23	619.23	0.00	618.29	618.29	0.00	616.12	616.12	0.00	609.44	609.44	0.00	609.89	609.89	0.00
	6.8275	Estabrook Park Dam																			
	6.828	Outfall MkeR-7, left		621.11	621.65	-0.54	619.23	619.96	-0.73	618.29	619.17	-0.88	616.12	617.50	-1.38	609.44	613.17	-3.73	609.89	613.51	-3.62
	6.829	**Cross-Section**		621.11	622.18	-1.07	619.23	620.68	-1.45	618.29	620.05	-1.76	616.12	618.88	-2.76	609.44	616.89	-7.45	609.89	617.12	-7.23
	6.843	**Cross-Section**		621.11	622.18	-1.07	619.22	620.67	-1.45	618.29	620.04	-1.75	616.12	618.87	-2.75	609.95	616.89	-6.94	610.13	617.12	-6.99
	6.866	Outfall MkeR-8, right		621.09	622.16	-1.07	619.21	620.66	-1.45	618.29	620.03	-1.74	616.14	618.87	-2.73	610.08	616.89	-6.81	610.31	617.12	-6.81
	6.928	**Cross-Section**		621.04	622.10	-1.06	619.19	620.63	-1.44	618.28	620.01	-1.73	616.20	618.87	-2.67	610.43	616.89	-6.46	610.79	617.12	-6.33
	6.941	**Cross-Section - Rock Ramp**		621.09	622.14	-1.05	619.25	620.66	-1.41	618.34	620.05	-1.71	616.27	618.89	-2.62	610.46	616.89	-6.43	610.83	617.12	-6.29
	6.96	**Cross-Section - Rock Ramp**		621.02	622.16	-1.14	619.17	620.69	-1.52	618.25	620.07	-1.82	616.68	618.90	-2.22	613.62	616.89	-3.27	613.79	617.12	-3.33
	6.963	**Cross-Section**		622.03	622.17	-0.14	620.48	620.70	-0.22	619.79	620.08	-0.29	618.50	618.91	-0.41	613.83	616.89	-3.06	614.09	617.12	-3.03
	6.987	**Cross-Section**		622.18	622.32	-0.14	620.61	620.82	-0.21	619.90	620.18	-0.28	618.57	618.97	-0.40	613.83	616.89	-3.06	614.10	617.12	-3.02
	7.087	**Cross-Section**		622.56	622.68	-0.12	620.96	621.15	-0.19	620.23	620.48	-0.25	618.80	619.18	-0.38	613.83	616.89	-3.06	614.10	617.12	-3.02
	7.096	Outfall MkeR-9, left	610.8	622.54	622.66	-0.12	620.95	621.14	-0.19	620.22	620.47	-0.25	618.80	619.17	-0.37	613.83	616.89	-3.06	614.10	617.12	-3.02
	7.098	Outfall MkeR-10, left		622.54	622.66	-0.12	620.95	621.14	-0.19	620.22	620.47	-0.25	618.80	619.17	-0.37	613.83	616.89	-3.06	614.10	617.12	-3.02
	7.103	**Cross-Section**		622.53	622.65	-0.12	620.94	621.13	-0.19	620.22	620.47	-0.25	618.80	619.17	-0.37	613.83	616.89	-3.06	614.10	617.12	-3.02
	7.104	Outfall MkeR-11, right	615.6	622.54	622.66	-0.12	620.94	621.13	-0.19	620.22	620.47	-0.25	618.80	619.17	-0.37	613.83	616.89	-3.06	614.10	617.12	-3.02
	7.104	Outfall MkeR-12, right		622.54	622.66	-0.12	620.94	621.13	-0.19	620.22	620.47	-0.25	618.80	619.17	-0.37	613.83	616.89	-3.06	614.10	617.12	-3.02
	7.11	Port Washington Road																			
	7.117	**Cross-Section**		622.60	622.72	-0.12	621.00	621.19	-0.19	620.27	620.52	-0.25	618.84	619.21	-0.37	613.83	616.89	-3.06	614.10	617.12	-3.02
	7.16	**Cross-Section**		622.69	622.81	-0.12	621.09	621.28	-0.19	620.36	620.60	-0.24	618.91	619.27	-0.36	613.83	616.89	-3.06	614.11	617.12	-3.01
	7.17	IH 43																			
	7.183	**Cross-Section**		622.84	622.95	-0.11	621.23	621.41	-0.18	620.49	620.72	-0.23	619.00	619.35	-0.35	613.83	616.90	-3.07	614.11	617.13	-3.02
	7.189	**Cross-Section**		622.88	622.99	-0.11	621.27	621.44	-0.17	620.52	620.75	-0.23	619.03	619.37	-0.34	613.83	616.90	-3.07	614.11	617.13	-3.02
	7.19	Ramp to IH 43																			
	7.199	**Cross-Section**		623.00	623.11	-0.11	621.37	621.54	-0.17	620.61	620.84	-0.23	619.10	619.44	-0.34	613.84	616.92	-3.08	614.11	617.16	-3.05
	7.201	Outfall MkeR-13, right		623.00	623.11	-0.11	621.37	621.54	-0.17	620.61	620.84	-0.23	619.10	619.44	-0.34	613.84	616.92	-3.08	614.11	617.16	-3.05
	7.241	Outfall MkeR-14, right		623.09	623.20	-0.11	621.46	621.63	-0.16	620.70	620.92	-0.22	619.17	619.51	-0.33	613.84	616.92	-3.08	614.12	617.16	-3.04
	7.359	**Cross-Section**		623.34	623.44	-0.10	621.72	621.87	-0.15	620.96	621.15	-0.19	619.38	619.69	-0.31	613.84	616.92	-3.08	614.13	617.16	-3.03
	7.519	Outfall MkeR-15, right	629.46	623.82	623.91	-0.09	622.18	622.31	-0.13	621.40	621.57	-0.17	619.74	620.01	-0.27	613.85	616.92	-3.07	614.14	617.16	-3.02
	7.519	**Cross-Section**		623.82	623.91	-0.09	622.18	622.31	-0.13	621.40	621.57	-0.17	619.74	620.01	-0.27	613.85	616.92	-3.07	614.14	617.16	-3.02
	7.526	Outfall MkeR-16, right		623.83	623.92	-0.09	622.19	622.32	-0.13	621.41	621.58	-0.17	619.75	620.02	-0.27	613.85	616.92	-3.07	614.14	617.16	-3.02
	7.576	Outfall MkeR-17, right	618.1	623.91	623.99	-0.09	622.27	622.40	-0.13	621.49	621.66	-0.16	619.82	620.08	-0.26	613.85	616.92	-3.07	614.15	617.16	-3.01
	7.633	**Cross-Section**		623.99	624.07	-0.08	622.36	622.48	-0.12	621.58	621.74	-0.16	619.90	620.15	-0.25	613.85	616.92	-3.07	614.15	617.16	-3.01
	7.64	Outfall MkeR-18, right		624.00	624.08	-0.08	622.37	622.49	-0.12	621.59	621.75	-0.16	619.91	620.16	-0.25	613.85	616.92	-3.07	614.15	617.16	-3.01
	7.654	**Cross-Section**		624.01	624.09	-0.08	622.38	622.50	-0.12	621.60	621.76	-0.16	619.92	620.17	-0.25	613.86	616.92	-3.06	614.16	617.16	-3.00
	7.656	Outfall MkeR-19, right		624.03	624.11	-0.08	622.40	622.52	-0.12	621.62	621.78	-0.16	619.93	620.18	-0.25	613.86	616.92	-3.06	614.16	617.16	-3.00
	7.66	Hampton Avenue																			
	7.669	**Cross-Section**		624.18	624.26	-0.08	622.53	622.65	-0.12	621.74	621.89	-0.15	620.02	620.26	-0.24	613.86	616.92	-3.06	614.16	617.16	-3.00
	7.669	Outfall MkeR-20, right		624.18	624.26	-0.08	622.53	622.65	-0.12	621.74	621.89	-0.15	620.02	620.26	-0.24	613.86	616.92	-3.06	614.16	617.16	-3.00
	7.706	**Cross-Section**		624.42	624.50	-0.08	622.69	622.81	-0.12	621.87	622.02	-0.15	620.10	620.34	-0.24	613.86	616.92	-3.06	614.16	617.16	-3.00
	7.745	**Cross-Section**		624.59	624.66	-0.07	622.83	622.95	-0.12	621.99	622.14	-0.15	620.19	620.42	-0.23	613.86	616.92	-3.06	614.16	617.16	-3.00

Decreases in water surface elevation relative to existing dam conditions.

Table 4 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Middle Reach	**7.851**	**Cross-Section**		624.79	624.86	-0.07	623.02	623.13	-0.11	622.16	622.30	-0.14	620.30	620.53	-0.23	614.23	616.92	-2.69	614.47	617.16	-2.69
	7.876	**Cross-Section**		624.80	624.87	-0.07	623.03	623.14	-0.11	622.17	622.32	-0.15	620.31	620.54	-0.23	614.23	616.92	-2.69	614.47	617.16	-2.69
	7.934	**Cross-Section**		624.83	624.90	-0.07	623.07	623.17	-0.10	622.21	622.35	-0.14	620.35	620.57	-0.22	614.23	616.92	-2.69	614.47	617.16	-2.69
	7.945	Outfall MkeR-21, left		624.83	624.90	-0.07	623.07	623.17	-0.10	622.21	622.35	-0.14	620.35	620.57	-0.22	614.23	616.92	-2.69	614.47	617.16	-2.69
	8.003	**Cross-Section**		624.83	624.90	-0.07	623.07	623.18	-0.11	622.22	622.36	-0.14	620.36	620.58	-0.22	614.23	616.92	-2.69	614.48	617.16	-2.68
	8.098	Outfall MkeR-22, right	613.85	624.86	624.93	-0.07	623.10	623.21	-0.11	622.25	622.39	-0.14	620.39	620.61	-0.22	614.24	616.92	-2.68	614.49	617.17	-2.68
	8.132	**Cross-Section**		624.87	624.94	-0.07	623.11	623.22	-0.11	622.26	622.40	-0.14	620.40	620.62	-0.22	614.24	616.92	-2.68	614.49	617.17	-2.68
	8.141	**Cross-Section**		624.87	624.94	-0.07	623.11	623.22	-0.11	622.27	622.40	-0.13	620.40	620.62	-0.22	614.24	616.92	-2.68	614.49	617.17	-2.68
	8.145	**Cross-Section**		624.87	624.94	-0.07	623.12	623.22	-0.10	622.27	622.41	-0.14	620.41	620.63	-0.22	614.24	616.92	-2.68	614.49	617.17	-2.68
Milwaukee River - Right Split (west oxbow)	**7.8761**	**Cross-Section**		624.76	624.83	-0.07	622.98	623.09	-0.11	622.12	622.27	-0.15	620.26	620.49	-0.23	614.23	616.92	-2.69	614.47	617.16	-2.69
	7.9	Milwaukee River Parkway																			
	7.9341	**Cross-Section**		624.78	624.85	-0.07	623.01	623.11	-0.10	622.15	622.30	-0.15	620.29	620.52	-0.23	614.23	616.92	-2.69	614.47	617.16	-2.69
	8.0031	**Cross-Section**		624.85	624.92	-0.07	623.10	623.20	-0.10	622.24	622.38	-0.14	620.37	620.59	-0.22	614.23	616.92	-2.69	614.47	617.16	-2.69
	8.047	Lincoln Creek Confluence		624.85	624.92	-0.07	623.10	623.20	-0.10	622.24	622.38	-0.14	620.37	620.59	-0.22	614.23	616.92	-2.69	614.47	617.16	-2.69
	8.1321	**Cross-Section**		624.86	624.93	-0.07	623.10	623.20	-0.10	622.24	622.38	-0.14	620.38	620.60	-0.22	614.23	616.92	-2.69	614.47	617.16	-2.69
	8.1411	**Cross-Section**		624.83	624.90	-0.07	623.07	623.18	-0.11	622.22	622.36	-0.14	620.36	620.58	-0.22	614.23	616.92	-2.69	614.47	617.16	-2.69
	8.142	Milwaukee River Parkway																			
	8.1451	**Cross-Section**		624.84	624.91	-0.07	623.08	623.19	-0.11	622.23	622.37	-0.14	620.37	620.59	-0.22	614.23	616.92	-2.69	614.48	617.17	-2.69
Milwaukee River - Upper Reach	**8.229**	**Cross-Section**		624.61	624.68	-0.07	622.92	623.02	-0.10	622.10	622.24	-0.14	620.32	620.54	-0.22	614.24	616.92	-2.68	614.50	617.17	-2.67
	8.244	Outfall MkeR-23, right	615.04	624.64	624.71	-0.07	622.95	623.05	-0.10	622.13	622.27	-0.14	620.35	620.57	-0.22	614.24	616.92	-2.68	614.50	617.17	-2.67
	8.341	**Cross-Section**		624.83	624.90	-0.07	623.16	623.26	-0.10	622.36	622.48	-0.12	620.56	620.76	-0.20	614.25	616.92	-2.67	614.51	617.17	-2.66
	8.343	Outfall MkeR-24, right		624.82	624.89	-0.07	623.16	623.26	-0.10	622.36	622.48	-0.12	620.56	620.76	-0.20	614.25	616.92	-2.67	614.51	617.17	-2.66
	8.357	**Cross-Section**		624.77	624.84	-0.07	623.13	623.23	-0.10	622.33	622.45	-0.12	620.55	620.75	-0.20	614.25	616.92	-2.67	614.51	617.17	-2.66
	8.36	Railroad Bridge																			
	8.366	Outfall MkeR-25, right	613.02	624.96	625.02	-0.07	623.28	623.37	-0.10	622.46	622.58	-0.12	620.65	620.85	-0.20	614.27	616.95	-2.67	614.54	617.19	-2.66
	8.375	**Cross-Section**		625.14	625.20	-0.06	623.42	623.51	-0.09	622.59	622.71	-0.12	620.75	620.94	-0.19	614.29	616.97	-2.68	614.56	617.21	-2.65
	8.381	**Cross-Section**		625.15	625.21	-0.06	623.44	623.53	-0.09	622.61	622.73	-0.12	620.77	620.96	-0.19	614.29	616.97	-2.68	614.56	617.21	-2.65
	8.389	Outfall MkeR-27, left		625.27	625.33	-0.06	623.52	623.61	-0.09	622.67	622.79	-0.12	620.80	620.98	-0.18	614.29	616.97	-2.68	614.56	617.21	-2.65
	8.39	Outfall MkeR-26, right	611.95	625.28	625.34	-0.06	623.53	623.62	-0.09	622.67	622.79	-0.12	620.80	620.99	-0.18	614.29	616.97	-2.68	614.56	617.21	-2.65
	8.394	**Cross-Section**		625.34	625.40	-0.06	623.57	623.66	-0.09	622.70	622.82	-0.12	620.82	621.00	-0.18	614.29	616.97	-2.68	614.56	617.21	-2.65
	8.553	Outfall MkeR-28, left		626.10	626.15	-0.05	624.28	624.36	-0.07	623.40	623.49	-0.09	621.42	621.58	-0.15	614.31	616.97	-2.66	614.61	617.22	-2.61
	8.574	Outfall MkeR-29, right	616.26	626.20	626.25	-0.05	624.38	624.45	-0.07	623.49	623.58	-0.09	621.50	621.65	-0.15	614.31	616.97	-2.66	614.62	617.22	-2.60
	8.579	**Cross-Section**		626.22	626.27	-0.05	624.40	624.47	-0.07	623.51	623.60	-0.09	621.52	621.67	-0.15	614.31	616.97	-2.66	614.62	617.22	-2.60
	8.66	**Cross-Section**		626.68	626.73	-0.05	624.82	624.88	-0.06	623.91	623.99	-0.08	621.85	621.98	-0.13	614.33	616.98	-2.65	614.66	617.23	-2.57
	8.716	**Cross-Section**		626.86	626.90	-0.04	625.00	625.06	-0.06	624.09	624.16	-0.07	622.04	622.16	-0.12	614.36	616.98	-2.62	614.71	617.23	-2.52
	8.73	Outfall MkeR-30, left		626.84	626.88	-0.04	624.99	625.05	-0.06	624.08	624.16	-0.08	622.03	622.15	-0.12	614.36	616.98	-2.62	614.72	617.23	-2.51
	8.73	**Cross-Section**		626.84	626.88	-0.04	624.99	625.05	-0.06	624.08	624.16	-0.08	622.03	622.15	-0.12	614.36	616.98	-2.62	614.72	617.23	-2.51
	8.732	Outfall MkeR-31, right		626.85	626.89	-0.04	625.00	625.06	-0.06	624.09	624.17	-0.08	622.04	622.16	-0.12	614.37	616.98	-2.61	614.73	617.23	-2.50
	8.733	Outfall MkeR-33, left		626.86	626.90	-0.04	625.01	625.07	-0.06	624.10	624.18	-0.08	622.05	622.17	-0.12	614.37	616.98	-2.61	614.74	617.23	-2.49
	8.734	Outfall MkeR-32, right		626.87	626.91	-0.04	625.01	625.07	-0.06	624.10	624.18	-0.08	622.05	622.17	-0.12	614.38	616.98	-2.60	614.75	617.23	-2.48
	8.74	Silver Spring Road																			
	8.759	**Cross-Section**		627.03	627.07	-0.04	625.16	625.22	-0.06	624.26	624.33	-0.07	622.21	622.32	-0.11	614.48	616.98	-2.50	614.92	617.24	-2.32
	8.783	**Cross-Section**		627.10	627.14	-0.04	625.23	625.29	-0.06	624.32	624.39	-0.07	622.28	622.39	-0.11	614.52	616.98	-2.46	614.98	617.25	-2.27
	8.963	**Cross-Section**		627.67	627.70	-0.03	625.82	625.87	-0.05	624.91	624.97	-0.06	622.84	622.93	-0.09	614.59	616.99	-2.40	615.12	617.26	-2.14
	8.966	Outfall MkeR-34, right		627.68	627.71	-0.03	625.83	625.88	-0.05	624.92	624.98	-0.06	622.85	622.94	-0.09	614.59	616.99	-2.40	615.12	617.26	-2.14
	9.125	**Cross-Section**		628.25	628.28	-0.03	626.41	626.45	-0.04	625.51	625.55	-0.04	623.42	623.49	-0.07	614.73	617.00	-2.27	615.33	617.29	-1.96
	9.13	Outfall MkeR-35, left		628.28	628.31	-0.03	626.43	626.47	-0.04	625.53	625.57	-0.04	623.44	623.51	-0.07	614.74	617.00	-2.26	615.34	617.29	-1.95
	9.242	Outfall MkeR-36, left		628.84	628.87	-0.03	626.98	627.02	-0.04	626.08	626.11	-0.04	623.96	624.02	-0.06	614.92	617.01	-2.10	615.56	617.33	-1.77
	9.244	Outfall MkeR-37, right		628.85	628.88	-0.03	626.99	627.03	-0.04	626.09	626.12	-0.04	623.97	624.03	-0.06	614.92	617.01	-2.09	615.56	617.33	-1.77

Decreases in water surface elevation relative to existing dam conditions.

Table 4 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Upper Reach (continued)	9.376	Outfall MkeR-38, left		629.51	629.54	-0.02	627.64	627.67	-0.03	626.72	626.76	-0.03	624.58	624.63	-0.05	615.13	617.02	-1.90	615.82	617.37	-1.55
	9.427	**Cross-Section**		629.77	629.79	-0.02	627.89	627.92	-0.03	626.97	627.00	-0.03	624.82	624.86	-0.04	615.21	617.03	-1.82	615.92	617.39	-1.47
	9.471	Outfall MkeR-40, right		629.92	629.94	-0.02	628.04	628.07	-0.03	627.12	627.15	-0.03	624.97	625.01	-0.04	615.32	617.04	-1.72	616.04	617.42	-1.38
	9.476	Outfall MkeR-39, left		629.93	629.95	-0.02	628.06	628.09	-0.03	627.14	627.17	-0.03	624.99	625.03	-0.04	615.34	617.04	-1.70	616.05	617.42	-1.36
	9.601	Outfall MkeR-41, left		630.35	630.37	-0.02	628.49	628.51	-0.02	627.57	627.59	-0.02	625.42	625.45	-0.03	615.66	617.07	-1.41	616.39	617.49	-1.10
	9.632	Outfall MkeR-42, right		630.45	630.47	-0.02	628.59	628.61	-0.02	627.67	627.69	-0.02	625.53	625.55	-0.02	615.74	617.08	-1.34	616.48	617.51	-1.03
	9.669	**Cross-Section**		630.57	630.59	-0.02	628.72	628.74	-0.02	627.80	627.82	-0.02	625.66	625.68	-0.02	615.84	617.09	-1.25	616.58	617.53	-0.95
	9.834	Outfall MkeR-43, right		631.33	631.35	-0.02	629.72	629.73	-0.01	628.95	628.96	-0.01	627.03	627.04	-0.01	616.52	617.25	-0.73	617.33	617.86	-0.53
	9.846	**Cross-Section**		631.38	631.40	-0.02	629.79	629.80	-0.01	629.03	629.04	-0.01	627.13	627.14	-0.01	616.57	617.26	-0.69	617.38	617.88	-0.50
	9.854	Outfall MkeR-44, left		631.44	631.46	-0.02	629.85	629.86	-0.01	629.09	629.10	-0.01	627.18	627.19	-0.01	616.58	617.27	-0.68	617.40	617.89	-0.49
	9.973	Outfall MkeR-45, right		632.39	632.39	0.00	630.81	630.82	-0.01	630.02	630.03	-0.01	627.96	627.97	-0.01	616.79	617.35	-0.57	617.63	618.04	-0.41
	10.009	**Cross-Section**		632.67	632.67	0.00	631.10	631.11	-0.01	630.30	630.31	-0.01	628.19	628.20	-0.01	616.85	617.38	-0.53	617.70	618.08	-0.38
	10.015	Outfall MkeR-46, right		632.75	632.75	0.00	631.16	631.17	-0.01	630.36	630.37	-0.01	628.23	628.24	-0.01	616.85	617.38	-0.53	617.71	618.08	-0.38
	10.023	**Cross-Section**		632.85	632.85	0.00	631.25	631.26	-0.01	630.44	630.44	0.00	628.29	628.30	-0.01	616.86	617.39	-0.53	617.72	618.09	-0.37
	10.025	Outfall MkeR-48, left		632.85	632.85	0.00	631.25	631.26	-0.01	630.44	630.44	0.00	628.29	628.30	-0.01	616.86	617.39	-0.53	617.72	618.09	-0.37
	10.038	Outfall MkeR-47, right		632.82	632.82	-0.01	631.22	631.23	-0.01	630.41	630.42	-0.01	628.27	628.28	-0.01	616.88	617.40	-0.51	617.74	618.10	-0.36
	10.04	Bender Road																			
	10.051	**Cross-Section**		632.79	632.80	-0.01	631.20	631.21	-0.01	630.39	630.40	-0.01	628.25	628.26	-0.01	616.90	617.40	-0.50	617.75	618.11	-0.36
Lincoln Creek - Lower Mainstream	**0**	**Cross-Section**		624.85[b]	624.92[b]	-0.07	623.10[b]	623.20[b]	-0.10	622.24[b]	622.38[b]	-0.14	620.37[b]	620.59[b]	-0.22						
	0.03	**Cross-Section**		624.85[b]	624.92[b]	-0.07	623.10[b]	623.20[b]	-0.10	622.24[b]	622.38[b]	-0.14	620.37[b]	620.59[b]	-0.22						
	0.0303	Outfall LC-1, right		624.85[b]	624.92[b]	-0.07	623.10[b]	623.20[b]	-0.10	622.24[b]	622.38[b]	-0.14	620.37[b]	620.59[b]	-0.22						
	0.14	**Cross-Section**		624.85[b]	624.92[b]	-0.07	623.10[b]	623.20[b]	-0.10	622.24[b]	622.38[b]	-0.14	620.37[b]	620.59[b]	-0.22						
	0.16	**Cross-Section**		624.85[b]	624.92[b]	-0.07	623.10[b]	623.20[b]	-0.10	622.24[b]	622.38[b]	-0.14	620.37[b]	620.59[b]	-0.22						
	0.18	**Cross-Section**		624.85[b]	624.92[b]	-0.07	623.10[b]	623.20[b]	-0.10	622.24[b]	622.38[b]	-0.14	620.37[b]	620.59[b]	-0.22						
	0.181	Outfall LC-2, right	612.1	624.85[b]	624.92[b]	-0.07	623.10[b]	623.20[b]	-0.10	622.24[b]	622.38[b]	-0.14	620.37[b]	620.59[b]	-0.22						
	0.21	**Cross-Section**		624.85[b]	624.92[b]	-0.07	623.10[b]	623.20[b]	-0.10	622.24[b]	622.38[b]	-0.14	620.42	620.59[b]	-0.17						
	0.33	**Cross-Section**		624.85[b]	624.92[b]	-0.07	623.10[b]	623.20[b]	-0.10	622.24[b]	622.38[b]	-0.14	621.04	621.04	0.00						
	0.333	Outfall LC-3, left	614.44	624.85[b]	624.92[b]	-0.07	623.10[b]	623.20[b]	-0.10	622.24[b]	622.38[b]	-0.14	621.07	621.07	0.00						
	0.4	**Cross-Section**		624.87	624.92[b]	-0.05	623.50	623.50	0.00	623.00	623.00	0.00	621.71	621.71	0.00						
	0.41	**Cross-Section**		624.89	624.92[b]	-0.03	623.52	623.52	0.00	623.03	623.03	0.00	621.73	621.73	0.00						
	0.41	Outfall LC-4, left	614.23	624.89	624.92[b]	-0.03	623.52	623.52	0.00	623.03	623.03	0.00	621.73	621.73	0.00						
	0.419	Outfall LC-5, right	616.72	624.89	624.92[b]	-0.03	623.52	623.62	0.00	623.03	623.03	0.00	621.73	621.73	0.00						
	0.42	N. Green Bay Avenue																			
	0.43	**Cross-Section**		625.59	625.59	0.00	623.74	623.74	0.00	623.21	623.21	0.00	621.87	621.87	0.00						
	0.44	**Cross-Section**		625.58	625.58	0.00	623.72	623.72	0.00	623.20	623.20	0.00	621.85	621.85	0.00						
	0.47	**Cross-Section**		626.18	626.18	0.00	624.18	624.18	0.00	623.60	623.60	0.00	622.12	622.12	0.00						
	0.5	**Cross-Section**		626.26	626.26	0.00	624.25	624.25	0.00	623.66	623.66	0.00	622.19	622.19	0.00						
	0.54	**Cross-Section**		626.21	626.21	0.00	624.25	624.25	0.00	623.69	623.69	0.00	622.27	622.27	0.00						
	0.6	**Cross-Section**		626.00	626.00	0.00	624.18	624.18	0.00	623.65	623.65	0.00	622.30	622.30	0.00						
	0.61	**Cross-Section**		626.12	626.12	0.00	624.31	624.31	0.00	623.78	623.78	0.00	622.40	622.40	0.00						
	0.62	**Cross-Section**		626.44	626.44	0.00	624.72	624.72	0.00	624.16	624.16	0.00	622.67	622.67	0.00						
	0.631	Outfall LC-6, left	614.76	626.51	626.51	0.00	624.76	624.76	0.00	624.20	624.20	0.00	622.70	622.70	0.00						
	0.71	**Cross-Section**		627.05	627.05	0.00	625.05	625.05	0.00	624.45	624.45	0.00	622.95	622.95	0.00						
	0.75	**Cross-Section**		627.13	627.13	0.00	625.15	625.15	0.00	624.55	624.55	0.00	623.05	623.05	0.00						
	0.79	**Cross-Section**		627.23	627.23	0.00	625.25	625.25	0.00	624.65	624.65	0.00	623.12	623.12	0.00						
	0.794	**Cross-Section**		627.25	627.25	0.00	625.28	625.28	0.00	624.67	624.67	0.00	623.15	623.15	0.00						
	0.798	Outfall LC-7, right	615.47	627.39	627.39	0.00	625.32	625.32	0.00	624.70	624.70	0.00	623.18	623.18	0.00						

Decreases in water surface elevation relative to existing dam conditions.

[b] *Water surface elevation determined using backwater from the confluence with the Right Split (west oxbow) of the Milwaukee River.*

Table 4 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp Mod. W.S. Elev (NGVD29, ft)	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Lincoln Creek - Lower Mainstream (continued)	0.799	Outfall LC-8, right	615.46	627.42	627.42	0.00	625.33	625.33	0.00	624.71	624.71	0.00	623.18	623.18	0.00						
	0.803	W. Villard Avenue																			
	0.81	**Cross-Section**		627.79	627.79	0.00	625.43	625.43	0.00	624.79	624.79	0.00	623.26	623.26	0.00						
	0.82	**Cross-Section**		628.12	628.12	0.00	625.57	625.57	0.00	624.91	624.91	0.00	623.33	623.33	0.00						
	0.848	Outfall LC-10, left	619.6	628.11	628.11	0.00	625.58	625.58	0.00	624.93	624.93	0.00	623.35	623.35	0.00						
	0.877	Outfall LC-9, right	619.17	628.11	628.11	0.00	625.60	625.60	0.00	624.94	624.94	0.00	623.37	623.37	0.00						
	0.909	**Cross-Section**		628.10	628.10	0.00	625.61	625.61	0.00	624.96	624.96	0.00	623.40	623.40	0.00						
	0.912	N. 24th Place Footbridge																			
	0.915	**Cross-Section**		628.22	628.22	0.00	625.64	625.64	0.00	624.98	624.98	0.00	623.42	623.42	0.00						
	0.919	Outfall LC-11, right	619.35	628.25	628.25	0.00	625.65	625.65	0.00	624.99	624.99	0.00	623.44	623.44	0.00						
	0.93	**Cross-Section**		628.34	628.34	0.00	625.69	625.69	0.00	625.03	625.03	0.00	623.48	623.48	0.00						
	0.972	Outfall LC-12, left	617.81	628.44	628.44	0.00	625.82	625.82	0.00	625.15	625.15	0.00	623.61	623.61	0.00						
	0.974	Outfall LC-13, left	617.09	628.44	628.44	0.00	625.83	625.83	0.00	625.16	625.16	0.00	623.61	623.61	0.00						
	0.987	Outfall LC-14, right	619.4	628.47	628.47	0.00	625.87	625.87	0.00	625.19	625.19	0.00	623.65	623.65	0.00						
	1.07	**Cross-Section**		628.67	628.67	0.00	626.12	626.12	0.00	625.43	625.43	0.00	623.90	623.90	0.00						
	1.12	**Cross-Section**		628.92	628.92	0.00	626.45	626.45	0.00	625.77	625.77	0.00	624.19	624.19	0.00						
	1.138	Outfall LC-15, left	616.13	629.04	629.04	0.00	626.60	626.60	0.00	625.90	625.90	0.00	624.32	624.32	0.00						
	1.141	Outfall LC-16, right	621.01	629.06	629.06	0.00	626.63	626.63	0.00	625.93	625.93	0.00	624.34	624.34	0.00						
	1.17	**Cross-Section**		629.25	629.25	0.00	626.87	626.87	0.00	626.14	626.14	0.00	624.54	624.54	0.00						

[a] *References to "left" and "right" are based on looking in the downstream direction.*

[b] *Water surface elevation determined using backwater from the confluence with the Right Split (west oxbow) of the Milwaukee River.*

ESTABROOK DAM STORM SEWER INVENTORY TABLES (00217490).DOC
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Table 5

WATER SURFACE PROFILE COMPARISON OF EXISTING DAM CONDITIONS TO ALTERNATIVE PLAN NO. 4
ABANDON AND REMOVE GATED PORTION OF DAM, LOWER AND REHABILITATE SERPENTINE OVERFLOW SPILLWAY, AND PROVIDE A 6.3-FOOT-HIGH ROCK RAMP

				500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Lower Reach	**6.827**	**Cross-Section - Rock Ramp**		621.06	621.11	-0.05	619.17	619.23	-0.06	618.23	618.29	-0.06	616.06	616.12	-0.06	609.47	609.44	0.03	609.94	609.89	0.05
	6.8275	Estabrook Park Dam																			
	6.828	Outfall MkeR-7, left		621.34	621.65	-0.31	619.72	619.96	-0.24	619.04	619.17	-0.13	617.47	617.50	-0.03	612.60	613.17	-0.57	612.92	613.51	-0.59
	6.829	**Cross-Section**		621.62	622.18	-0.56	620.27	620.68	-0.41	619.85	620.05	-0.20	618.88	618.88	0.00	615.72	616.89	-1.17	615.89	617.12	-1.23
	6.843	**Cross-Section**		621.61	622.18	-0.57	620.27	620.67	-0.40	619.85	620.04	-0.19	618.88	618.87	0.01	615.72	616.89	-1.17	615.89	617.12	-1.23
	6.866	Outfall MkeR-8, right		621.59	622.16	-0.57	620.26	620.66	-0.40	619.84	620.03	-0.19	618.88	618.87	0.01	615.72	616.89	-1.17	615.89	617.12	-1.23
	6.928	**Cross-Section**		621.54	622.10	-0.56	620.22	620.63	-0.41	619.82	620.01	-0.19	618.87	618.87	0.00	615.72	616.89	-1.17	615.89	617.12	-1.23
	6.941	**Cross-Section**		621.58	622.14	-0.56	620.26	620.66	-0.40	619.86	620.05	-0.19	618.89	618.89	0.00	615.72	616.89	-1.17	615.89	617.12	-1.23
	6.96	**Cross-Section**		621.61	622.16	-0.55	620.29	620.69	-0.40	619.88	620.07	-0.19	618.91	618.90	0.01	615.72	616.89	-1.17	615.89	617.12	-1.23
	6.963	**Cross-Section**		621.62	622.17	-0.55	620.30	620.70	-0.40	619.89	620.08	-0.19	618.91	618.91	0.00	615.72	616.89	-1.17	615.89	617.12	-1.23
	6.987	**Cross-Section**		621.79	622.32	-0.53	620.43	620.82	-0.39	620.00	620.18	-0.18	618.98	618.97	0.01	615.72	616.89	-1.17	615.89	617.12	-1.23
	7.087	**Cross-Section**		622.21	622.68	-0.47	620.81	621.15	-0.34	620.32	620.48	-0.16	619.18	619.18	0.00	615.72	616.89	-1.17	615.89	617.12	-1.23
	7.096	Outfall MkeR-9, left	610.8	622.19	622.66	-0.48	620.80	621.14	-0.34	620.31	620.47	-0.17	619.18	619.17	0.01	615.72	616.89	-1.17	615.89	617.12	-1.23
	7.098	Outfall MkeR-10, left		622.18	622.66	-0.48	620.80	621.14	-0.34	620.31	620.47	-0.17	619.18	619.17	0.01	615.72	616.89	-1.17	615.89	617.12	-1.23
	7.103	**Cross-Section**		622.17	622.65	-0.48	620.79	621.13	-0.34	620.30	620.47	-0.17	619.18	619.17	0.01	615.72	616.89	-1.17	615.89	617.12	-1.23
	7.104	Outfall MkeR-11, right	615.6	622.18	622.66	-0.48	620.79	621.13	-0.34	620.30	620.47	-0.17	619.18	619.17	0.01	615.72	616.89	-1.17	615.89	617.12	-1.23
	7.104	Outfall MkeR-12, right		622.18	622.66	-0.48	620.79	621.13	-0.34	620.30	620.47	-0.17	619.18	619.17	0.01	615.72	616.89	-1.17	615.89	617.12	-1.23
	7.11	Port Washington Road																			
	7.117	**Cross-Section**		622.25	622.72	-0.47	620.85	621.19	-0.34	620.36	620.52	-0.16	619.21	619.21	0.00	615.73	616.89	-1.16	615.89	617.12	-1.23
	7.16	**Cross-Section**		622.35	622.81	-0.46	620.95	621.28	-0.33	620.44	620.60	-0.16	619.27	619.27	0.00	615.73	616.89	-1.16	615.90	617.12	-1.22
	7.17	IH 43																			
	7.183	**Cross-Section**		622.52	622.95	-0.43	621.09	621.41	-0.32	620.57	620.72	-0.15	619.35	619.35	0.00	615.73	616.90	-1.17	615.90	617.13	-1.23
	7.189	**Cross-Section**		622.56	622.99	-0.43	621.13	621.44	-0.31	620.60	620.75	-0.15	619.38	619.37	0.01	615.73	616.90	-1.17	615.90	617.13	-1.23
	7.19	Ramp to IH 43																			
	7.199	**Cross-Section**		622.68	623.11	-0.43	621.23	621.54	-0.31	620.69	620.84	-0.15	619.45	619.44	0.01	615.75	616.92	-1.17	615.92	617.16	-1.24
	7.201	Outfall MkeR-13, right		622.68	623.11	-0.43	621.23	621.54	-0.31	620.69	620.84	-0.15	619.45	619.44	0.01	615.75	616.92	-1.17	615.92	617.16	-1.24
	7.241	Outfall MkeR-14, right		622.78	623.20	-0.42	621.33	621.63	-0.30	620.78	620.92	-0.14	619.52	619.51	0.01	615.75	616.92	-1.17	615.92	617.16	-1.24
	7.359	**Cross-Section**		623.06	623.44	-0.38	621.60	621.87	-0.27	621.02	621.15	-0.13	619.70	619.69	0.01	615.75	616.92	-1.17	615.92	617.16	-1.24
	7.519	Outfall MkeR-15, right	629.46	623.57	623.91	-0.34	622.08	622.31	-0.23	621.46	621.57	-0.11	620.01	620.01	0.00	615.75	616.92	-1.17	615.92	617.16	-1.24
	7.519	**Cross-Section**		623.57	623.91	-0.34	622.08	622.31	-0.23	621.46	621.57	-0.11	620.01	620.01	0.00	615.75	616.92	-1.17	615.92	617.16	-1.24
	7.526	Outfall MkeR-16, right		623.58	623.92	-0.34	622.09	622.32	-0.23	621.47	621.58	-0.11	620.02	620.02	0.00	615.75	616.92	-1.17	615.92	617.16	-1.24
	7.576	Outfall MkeR-17, right	618.1	623.66	623.99	-0.33	622.17	622.40	-0.23	621.55	621.66	-0.11	620.09	620.08	0.01	615.75	616.92	-1.17	615.93	617.16	-1.24
	7.633	**Cross-Section**		623.75	624.07	-0.32	622.26	622.48	-0.22	621.63	621.74	-0.11	620.16	620.15	0.01	615.75	616.92	-1.17	615.93	617.16	-1.23
	7.64	Outfall MkeR-18, right		623.76	624.08	-0.32	622.27	622.49	-0.22	621.64	621.75	-0.11	620.16	620.16	0.00	615.75	616.92	-1.17	615.93	617.16	-1.23
	7.654	**Cross-Section**		623.77	624.09	-0.32	622.28	622.50	-0.22	621.65	621.76	-0.11	620.17	620.17	0.00	615.75	616.92	-1.17	615.93	617.16	-1.23
	7.656	Outfall MkeR-19, right		623.80	624.11	-0.32	622.30	622.52	-0.22	621.67	621.78	-0.11	620.18	620.18	0.00	615.75	616.92	-1.17	615.93	617.16	-1.23
	7.66	Hampton Avenue																			
	7.669	**Cross-Section**		623.96	624.26	-0.30	622.44	622.65	-0.21	621.79	621.89	-0.10	620.26	620.26	0.00	615.75	616.92	-1.17	615.93	617.16	-1.23
	7.669	Outfall MkeR-20, right		623.96	624.26	-0.30	622.44	622.65	-0.21	621.79	621.89	-0.10	620.26	620.26	0.00	615.75	616.92	-1.17	615.93	617.16	-1.23
	7.706	**Cross-Section**		624.20	624.50	-0.30	622.60	622.81	-0.21	621.92	622.02	-0.10	620.34	620.34	0.00	615.75	616.92	-1.17	615.93	617.16	-1.23
	7.745	**Cross-Section**		624.37	624.66	-0.29	622.74	622.95	-0.21	622.04	622.14	-0.10	620.42	620.42	0.00	615.75	616.92	-1.17	615.93	617.16	-1.23

Decreases in water surface elevation relative to existing dam conditions.

Increases in water surface elevation relative to existing dam conditions.

Table 5 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Middle Reach	**7.851**	**Cross-Section**		624.58	624.86	-0.28	622.93	623.13	-0.20	622.21	622.30	-0.09	620.53	620.53	0.00	615.75	616.92	-1.17	615.93	617.16	-1.23
	7.876	**Cross-Section**		624.59	624.87	-0.28	622.95	623.14	-0.19	622.22	622.32	-0.10	620.54	620.54	0.00	615.75	616.92	-1.17	615.93	617.16	-1.23
	7.934	**Cross-Section**		624.63	624.90	-0.27	622.98	623.17	-0.19	622.26	622.35	-0.09	620.57	620.57	0.00	615.75	616.92	-1.17	615.93	617.16	-1.23
	7.945	Outfall MkeR-21, left		624.63	624.90	-0.27	622.98	623.17	-0.19	622.26	622.35	-0.09	620.57	620.57	0.00	615.75	616.92	-1.17	615.93	617.16	-1.23
	8.003	**Cross-Section**		624.63	624.90	-0.27	622.99	623.18	-0.19	622.27	622.36	-0.09	620.59	620.58	0.01	615.75	616.92	-1.17	615.93	617.16	-1.23
	8.098	Outfall MkeR-22, right	613.85	624.66	624.93	-0.27	623.02	623.21	-0.19	622.30	622.39	-0.09	620.61	620.61	0.00	615.75	616.92	-1.17	615.93	617.17	-1.24
	8.132	**Cross-Section**		624.67	624.94	-0.27	623.03	623.22	-0.19	622.31	622.40	-0.09	620.62	620.62	0.00	615.75	616.92	-1.17	615.93	617.17	-1.24
	8.141	**Cross-Section**		624.67	624.94	-0.27	623.03	623.22	-0.19	622.31	622.40	-0.09	620.63	620.62	0.01	615.75	616.92	-1.17	615.93	617.17	-1.24
	8.145	**Cross-Section**		624.68	624.94	-0.26	623.04	623.22	-0.18	622.31	622.41	-0.10	620.63	620.63	0.00	615.75	616.92	-1.17	615.94	617.17	-1.23
Milwaukee River - Right Split (west oxbow)	**7.8761**	**Cross-Section**		624.55	624.83	-0.28	622.89	623.09	-0.20	622.17	622.27	-0.10	620.50	620.49	0.01	615.75	616.92	-1.17	615.93	617.16	-1.23
	7.9	Milwaukee River Parkway																			
	7.9341	**Cross-Section**		624.58	624.85	-0.27	622.92	623.11	-0.19	622.20	622.30	-0.10	620.53	620.52	0.01	615.75	616.92	-1.17	615.93	617.16	-1.23
	8.0031	**Cross-Section**		624.65	624.92	-0.27	623.01	623.20	-0.19	622.29	622.38	-0.09	620.60	620.59	0.01	615.75	616.92	-1.17	615.93	617.16	-1.23
	8.047	Lincoln Creek Confluence		624.65	624.92	-0.27	623.01	623.20	-0.19	622.29	622.38	-0.09	620.60	620.59	0.01	615.75	616.92	-1.17	615.93	617.16	-1.23
	8.1321	**Cross-Section**		624.66	624.93	-0.27	623.02	623.20	-0.18	622.29	622.38	-0.09	620.60	620.60	0.00	615.75	616.92	-1.17	615.93	617.16	-1.23
	8.1411	**Cross-Section**		624.63	624.90	-0.27	622.99	623.18	-0.19	622.27	622.36	-0.09	620.59	620.58	0.01	615.75	616.92	-1.17	615.93	617.16	-1.23
	8.142	Milwaukee River Parkway																			
	8.1451	**Cross-Section**		624.64	624.91	-0.27	623.00	623.19	-0.19	622.28	622.37	-0.09	620.60	620.59	0.01	615.75	616.92	-1.17	615.93	617.17	-1.24
Milwaukee River - Upper Reach	**8.229**	**Cross-Section**		624.40	624.68	-0.28	622.83	623.02	-0.19	622.15	622.24	-0.09	620.54	620.54	0.00	615.75	616.92	-1.17	615.94	617.17	-1.23
	8.244	Outfall MkeR-23, right	615.04	624.43	624.71	-0.28	622.86	623.05	-0.19	622.18	622.27	-0.09	620.57	620.57	0.00	615.75	616.92	-1.17	615.94	617.17	-1.23
	8.341	**Cross-Section**		624.64	624.90	-0.26	623.09	623.26	-0.17	622.40	622.48	-0.08	620.77	620.76	0.01	615.75	616.92	-1.17	615.94	617.17	-1.23
	8.343	Outfall MkeR-24, right		624.63	624.89	-0.26	623.09	623.26	-0.17	622.40	622.48	-0.08	620.77	620.76	0.01	615.75	616.92	-1.17	615.94	617.17	-1.23
	8.357	**Cross-Section**		624.59	624.84	-0.25	623.05	623.23	-0.18	622.37	622.45	-0.08	620.75	620.75	0.00	615.75	616.92	-1.17	615.94	617.17	-1.23
	8.36	Railroad Bridge																			
	8.366	Outfall MkeR-25, right	613.02	624.78	625.02	-0.24	623.20	623.37	-0.17	622.50	622.59	-0.09	620.85	620.85	0.00	615.78	616.95	-1.17	615.96	617.19	-1.23
	8.375	**Cross-Section**		624.97	625.20	-0.23	623.35	623.51	-0.16	622.63	622.71	-0.08	620.94	620.94	0.00	615.80	616.97	-1.17	615.98	617.21	-1.23
	8.381	**Cross-Section**		624.99	625.21	-0.22	623.37	623.53	-0.16	622.65	622.73	-0.08	620.96	620.96	0.00	615.80	616.97	-1.17	615.98	617.21	-1.23
	8.389	Outfall MkeR-27, left		625.10	625.33	-0.23	623.45	623.61	-0.16	622.71	622.79	-0.08	620.99	620.98	0.01	615.80	616.97	-1.17	615.99	617.21	-1.22
	8.39	Outfall MkeR-26, right	611.95	625.11	625.34	-0.23	623.46	623.62	-0.16	622.71	622.79	-0.08	620.99	620.99	0.00	615.80	616.97	-1.17	615.99	617.21	-1.22
	8.394	**Cross-Section**		625.17	625.40	-0.23	623.50	623.66	-0.16	622.74	622.82	-0.08	621.01	621.00	0.01	615.80	616.97	-1.17	615.99	617.21	-1.22
	8.553	Outfall MkeR-28, left		625.96	626.15	-0.19	624.23	624.36	-0.13	623.43	623.49	-0.06	621.58	621.58	0.00	615.80	616.97	-1.17	616.00	617.22	-1.22
	8.574	Outfall MkeR-29, right	616.26	626.07	626.25	-0.18	624.33	624.45	-0.12	623.52	623.58	-0.06	621.65	621.65	0.00	615.80	616.97	-1.17	616.00	617.22	-1.22
	8.579	**Cross-Section**		626.09	626.27	-0.18	624.35	624.47	-0.12	623.54	623.60	-0.06	621.67	621.67	0.00	615.80	616.97	-1.17	616.00	617.22	-1.22
	8.66	**Cross-Section**		626.56	626.73	-0.17	624.77	624.88	-0.11	623.93	623.99	-0.06	621.99	621.98	0.01	615.81	616.98	-1.17	616.02	617.23	-1.21
	8.716	**Cross-Section**		626.74	626.90	-0.16	624.95	625.06	-0.11	624.11	624.16	-0.05	622.16	622.16	0.00	615.81	616.98	-1.17	616.03	617.23	-1.20
	8.73	Outfall MkeR-30, left		626.73	626.88	-0.15	624.94	625.05	-0.11	624.10	624.16	-0.06	622.15	622.15	0.00	615.81	616.98	-1.17	616.03	617.23	-1.20
	8.73	**Cross-Section**		626.73	626.88	-0.15	624.94	625.05	-0.11	624.10	624.16	-0.06	622.15	622.15	0.00	615.81	616.98	-1.17	616.03	617.23	-1.20
	8.732	Outfall MkeR-31, right		626.74	626.89	-0.15	624.95	625.06	-0.11	624.11	624.17	-0.06	622.16	622.16	0.00	615.81	616.98	-1.17	616.03	617.23	-1.20
	8.733	Outfall MkeR-33, left		626.75	626.90	-0.15	624.96	625.07	-0.11	624.12	624.18	-0.06	622.17	622.17	0.00	615.81	616.98	-1.17	616.03	617.23	-1.20
	8.734	Outfall MkeR-32, right		626.76	626.91	-0.15	624.96	625.07	-0.11	624.12	624.18	-0.06	622.17	622.17	0.00	615.81	616.98	-1.17	616.03	617.23	-1.20
	8.74	Silver Spring Road																			
	8.759	**Cross-Section**		626.92	627.07	-0.15	625.12	625.22	-0.10	624.28	624.33	-0.05	622.32	622.32	0.00	615.82	616.98	-1.16	616.05	617.24	-1.19
	8.783	**Cross-Section**		626.99	627.14	-0.15	625.19	625.29	-0.10	624.35	624.39	-0.04	622.39	622.39	0.00	615.83	616.98	-1.15	616.07	617.25	-1.18
	8.963	**Cross-Section**		627.58	627.70	-0.12	625.78	625.87	-0.09	624.93	624.97	-0.04	622.93	622.93	0.00	615.84	616.99	-1.15	616.11	617.26	-1.15
	8.966	Outfall MkeR-34, right		627.59	627.71	-0.12	625.79	625.88	-0.09	624.94	624.98	-0.04	622.94	622.94	0.00	615.84	616.99	-1.15	616.11	617.26	-1.15

Decreases in water surface elevation relative to existing dam conditions.

Increases in water surface elevation relative to existing dam conditions.

Table 5 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Milwaukee River - Upper Reach (continued)	**9.125**	**Cross-Section**		628.17	628.28	-0.11	626.38	626.45	-0.07	625.52	625.55	-0.03	623.49	623.49	0.00	615.87	617.00	-1.13	616.19	617.29	-1.10
	9.13	Outfall MkeR-35, left		628.20	628.31	-0.11	626.40	626.47	-0.07	625.54	625.57	-0.03	623.51	623.51	0.00	615.87	617.00	-1.13	616.19	617.29	-1.10
	9.242	Outfall MkeR-36, left		628.77	628.87	-0.09	626.96	627.02	-0.06	626.09	626.11	-0.02	624.02	624.02	0.00	615.91	617.01	-1.10	616.29	617.33	-1.04
	9.244	Outfall MkeR-37, right		628.78	628.88	-0.09	626.97	627.03	-0.06	626.10	626.12	-0.02	624.03	624.03	0.00	615.91	617.01	-1.10	616.29	617.33	-1.04
	9.376	Outfall MkeR-38, left		629.46	629.54	-0.08	627.63	627.67	-0.04	626.73	626.76	-0.03	624.63	624.63	0.00	615.96	617.02	-1.06	616.40	617.37	-0.98
	9.427	**Cross-Section**		629.72	629.79	-0.07	627.88	627.92	-0.04	626.98	627.00	-0.02	624.86	624.86	0.00	615.98	617.03	-1.05	616.44	617.39	-0.95
	9.471	Outfall MkeR-40, right		629.87	629.94	-0.07	628.03	628.07	-0.04	627.13	627.15	-0.02	625.01	625.01	0.00	616.02	617.04	-1.02	616.51	617.42	-0.91
	9.476	Outfall MkeR-39, left		629.88	629.95	-0.07	628.05	628.09	-0.04	627.15	627.17	-0.02	625.03	625.03	0.00	616.02	617.04	-1.02	616.51	617.42	-0.90
	9.601	Outfall MkeR-41, left		630.30	630.37	-0.06	628.47	628.51	-0.04	627.57	627.59	-0.02	625.46	625.45	0.01	616.13	617.07	-0.94	616.71	617.49	-0.78
	9.632	Outfall MkeR-42, right		630.41	630.47	-0.06	628.57	628.61	-0.04	627.67	627.69	-0.02	625.56	625.55	0.01	616.16	617.08	-0.92	616.75	617.51	-0.76
	9.669	**Cross-Section**		630.53	630.59	-0.06	628.70	628.74	-0.04	627.80	627.82	-0.02	625.69	625.68	0.01	616.19	617.09	-0.90	616.81	617.53	-0.72
	9.834	Outfall MkeR-43, right		631.30	631.35	-0.04	629.71	629.73	-0.02	628.95	628.96	-0.01	627.04	627.04	0.00	616.65	617.25	-0.60	617.43	617.86	-0.43
	9.846	**Cross-Section**		631.36	631.40	-0.04	629.78	629.80	-0.02	629.03	629.04	-0.01	627.14	627.14	0.00	616.68	617.26	-0.58	617.47	617.88	-0.41
	9.854	Outfall MkeR-44, left		631.42	631.46	-0.04	629.84	629.86	-0.02	629.09	629.10	-0.01	627.19	627.19	0.00	616.69	617.27	-0.57	617.48	617.89	-0.41
	9.973	Outfall MkeR-45, right		632.37	632.39	-0.02	630.81	630.82	-0.01	630.03	630.03	0.00	627.97	627.97	0.00	616.87	617.35	-0.49	617.70	618.04	-0.33
	10.009	**Cross-Section**		632.65	632.67	-0.02	631.10	631.11	-0.01	630.31	630.31	0.00	628.20	628.20	0.00	616.92	617.38	-0.46	617.77	618.08	-0.31
	10.015	Outfall MkeR-46, right		632.73	632.75	-0.02	631.16	631.17	-0.01	630.37	630.37	0.00	628.24	628.24	0.00	616.93	617.38	-0.46	617.77	618.08	-0.31
	10.023	**Cross-Section**		632.84	632.85	-0.01	631.25	631.26	-0.01	630.44	630.44	0.00	628.30	628.30	0.00	616.94	617.39	-0.45	617.78	618.09	-0.31
	10.025	Outfall MkeR-48, left		632.84	632.85	-0.01	631.25	631.26	-0.01	630.44	630.44	0.00	628.30	628.30	0.00	616.94	617.39	-0.45	617.78	618.09	-0.31
	10.038	Outfall MkeR-47, right		632.81	632.82	-0.01	631.22	631.23	-0.01	630.41	630.42	-0.01	628.28	628.28	0.00	616.96	617.40	-0.44	617.80	618.10	-0.30
	10.04	Bender Road																			
	10.051	**Cross-Section**		632.78	632.80	-0.02	631.20	631.21	-0.01	630.39	630.40	-0.01	628.26	628.26	0.00	616.97	617.40	-0.43	617.81	618.11	-0.30
Lincoln Creek - Lower Mainstream	**0**	**Cross-Section**		624.65[b]	624.92[b]	-0.27	623.10[b]	623.20[b]	-0.10	622.29[b]	622.38[b]	-0.09	620.60[b]	620.59[b]	0.01						
	0.03	**Cross-Section**		624.65[b]	624.92[b]	-0.27	623.10[b]	623.20[b]	-0.10	622.29[b]	622.38[b]	-0.09	620.60[b]	620.59[b]	0.01						
	0.0303	Outfall LC-1, right		624.65[b]	624.92[b]	-0.27	623.10[b]	623.20[b]	-0.10	622.29[b]	622.38[b]	-0.09	620.60[b]	620.59[b]	0.01						
	0.14	**Cross-Section**		624.65[b]	624.92[b]	-0.27	623.10[b]	623.20[b]	-0.10	622.29[b]	622.38[b]	-0.09	620.60[b]	620.59[b]	0.01						
	0.16	**Cross-Section**		624.65[b]	624.92[b]	-0.27	623.10[b]	623.20[b]	-0.10	622.29[b]	622.38[b]	-0.09	620.60[b]	620.59[b]	0.01						
	0.18	**Cross-Section**		624.65[b]	624.92[b]	-0.27	623.10[b]	623.20[b]	-0.10	622.29[b]	622.38[b]	-0.09	620.60[b]	620.59[b]	0.01						
	0.181	Outfall LC-2, right	612.1	624.65[b]	624.92[b]	-0.27	623.10[b]	623.20[b]	-0.10	622.29[b]	622.38[b]	-0.09	620.60[b]	620.59[b]	0.01						
	0.21	**Cross-Section**		624.65[b]	624.92[b]	-0.27	623.10[b]	623.20[b]	-0.10	622.29[b]	622.38[b]	-0.09	620.60[b]	620.59[b]	0.01						
	0.33	**Cross-Section**		624.65[b]	624.92[b]	-0.27	623.10[b]	623.20[b]	-0.10	622.29[b]	622.38[b]	-0.09	621.04	621.04	0.00						
	0.333	Outfall LC-3, left	614.44	624.65[b]	624.92[b]	-0.27	623.10[b]	623.20[b]	-0.10	622.29[b]	622.38[b]	-0.09	621.07	621.07	0.00						
	0.4	**Cross-Section**		624.87	624.92[b]	-0.05	623.50	623.50	0.00	623.00	623.00	0.00	621.71	621.71	0.00						
	0.41	**Cross-Section**		624.89	624.92[b]	-0.03	623.52	623.52	0.00	623.03	623.03	0.00	621.73	621.73	0.00						
	0.41	Outfall LC-4, left	614.23	624.89	624.92[b]	-0.03	623.52	623.52	0.00	623.03	623.03	0.00	621.73	621.73	0.00						
	0.419	Outfall LC-5, right	616.72	624.89	624.92[b]	-0.03	623.52	623.62	0.00	623.03	623.03	0.00	621.73	621.73	0.00						
	0.42	N. Green Bay Avenue																			
	0.43	**Cross-Section**		625.59	625.59	0.00	623.74	623.74	0.00	623.21	623.21	0.00	621.87	621.87	0.00						
	0.44	**Cross-Section**		625.58	625.58	0.00	623.72	623.72	0.00	623.20	623.20	0.00	621.85	621.85	0.00						
	0.47	**Cross-Section**		626.18	626.18	0.00	624.18	624.18	0.00	623.60	623.60	0.00	622.12	622.12	0.00						
	0.5	**Cross-Section**		626.26	626.26	0.00	624.25	624.25	0.00	623.66	623.66	0.00	622.19	622.19	0.00						
	0.54	**Cross-Section**		626.21	626.21	0.00	624.25	624.25	0.00	623.69	623.69	0.00	622.27	622.27	0.00						
	0.6	**Cross-Section**		626.00	626.00	0.00	624.18	624.18	0.00	623.65	623.65	0.00	622.30	622.30	0.00						
	0.61	**Cross-Section**		626.12	626.12	0.00	624.31	624.31	0.00	623.78	623.78	0.00	622.40	622.40	0.00						
	0.62	**Cross-Section**		626.44	626.44	0.00	624.72	624.72	0.00	624.16	624.16	0.00	622.67	622.67	0.00						
	0.631	Outfall LC-6, left	614.76	626.51	626.51	0.00	624.76	624.76	0.00	624.20	624.20	0.00	622.70	622.70	0.00						

Decreases in water surface elevation relative to existing dam conditions.

Increases in water surface elevation relative to existing dam conditions.

[b] *Water surface elevation determined using backwater from the confluence with the Right Split (west oxbow) of the Milwaukee River.*

Table 5 (continued)

Model Reach	River Mile	Description[a]	Invert Elev NGVD29 (ft)	500-Yr Flow			100-Yr Flow			50-Yr Flow			10-Yr Flow			Median Flow			Mean Flow		
				Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)	Rock Ramp w/Fixed Crest at 615.4 ft NGVD29	Exist. Cond. W. S. Elev (NGVD29, ft)	Difference (ft)
Lincoln Creek - Lower Mainstream (continued)	**0.71**	**Cross-Section**		627.05	627.05	0.00	625.05	625.05	0.00	624.45	624.45	0.00	622.95	622.95	0.00						
	0.75	**Cross-Section**		627.13	627.13	0.00	625.15	625.15	0.00	624.55	624.55	0.00	623.05	623.05	0.00						
	0.79	**Cross-Section**		627.23	627.23	0.00	625.25	625.25	0.00	624.65	624.65	0.00	623.12	623.12	0.00						
	0.794	**Cross-Section**		627.25	627.25	0.00	625.28	625.28	0.00	624.67	624.67	0.00	623.15	623.15	0.00						
	0.798	Outfall LC-7, right	615.47	627.39	627.39	0.00	625.32	625.32	0.00	624.70	624.70	0.00	623.18	623.18	0.00						
	0.799	Outfall LC-8, right	615.46	627.42	627.42	0.00	625.33	625.33	0.00	624.71	624.71	0.00	623.18	623.18	0.00						
	0.803	W. Villard Avenue																			
	0.81	**Cross-Section**		627.79	627.79	0.00	625.43	625.43	0.00	624.79	624.79	0.00	623.26	623.26	0.00						
	0.82	**Cross-Section**		628.12	628.12	0.00	625.57	625.57	0.00	624.91	624.91	0.00	623.33	623.33	0.00						
	0.848	Outfall LC-10, left	619.6	628.11	628.11	0.00	625.58	625.58	0.00	624.93	624.93	0.00	623.35	623.35	0.00						
	0.877	Outfall LC-9, right	619.17	628.11	628.11	0.00	625.60	625.60	0.00	624.94	624.94	0.00	623.37	623.37	0.00						
	0.909	**Cross-Section**		628.10	628.10	0.00	625.61	625.61	0.00	624.96	624.96	0.00	623.40	623.40	0.00						
	0.912	N. 24th Place Footbridge																			
	0.915	**Cross-Section**		628.22	628.22	0.00	625.64	625.64	0.00	624.98	624.98	0.00	623.42	623.42	0.00						
	0.919	Outfall LC-11, right	619.35	628.25	628.25	0.00	625.65	625.65	0.00	624.99	624.99	0.00	623.44	623.44	0.00						
	0.93	**Cross-Section**		628.34	628.34	0.00	625.69	625.69	0.00	625.03	625.03	0.00	623.48	623.48	0.00						
	0.972	Outfall LC-12, left	617.81	628.44	628.44	0.00	625.82	625.82	0.00	625.15	625.15	0.00	623.61	623.61	0.00						
	0.974	Outfall LC-13, left	617.09	628.44	628.44	0.00	625.83	625.83	0.00	625.16	625.16	0.00	623.61	623.61	0.00						
	0.987	Outfall LC-14, right	619.4	628.47	628.47	0.00	625.87	625.87	0.00	625.19	625.19	0.00	623.65	623.65	0.00						
	1.07	**Cross-Section**		628.67	628.67	0.00	626.12	626.12	0.00	625.43	625.43	0.00	623.90	623.90	0.00						
	1.12	**Cross-Section**		628.92	628.92	0.00	626.45	626.45	0.00	625.77	625.77	0.00	624.19	624.19	0.00						
	1.138	Outfall LC-15, left	616.13	629.04	629.04	0.00	626.60	626.60	0.00	625.90	625.90	0.00	624.32	624.32	0.00						
	1.141	Outfall LC-16, right	621.01	629.06	629.06	0.00	626.63	626.63	0.00	625.93	625.93	0.00	624.34	624.34	0.00						
	1.17	**Cross-Section**		629.25	629.25	0.00	626.87	626.87	0.00	626.14	626.14	0.00	624.54	624.54	0.00						

[a] *References to "left" and "right" are based on looking in the downstream direction.*

[b] *Water surface elevation determined using backwater from the confluence with the Right Split (west oxbow) of the Milwaukee River.*

Table 6

MAXIMUM WATER DEPTH UNDER MEDIAN FLOW CONDITIONS

Condition Alternative	Lower Reach (Estabrook dam or Rock Ramp to W. Hampton Avenue) (feet)	Middle Reach (W. Hampton Avenue to abandoned railroad bridge upstream of Lincoln Park) (feet)	Upper Reach (Abandoned Railroad Bridge Upstream of Lincoln Park to W. Bender Road) (feet)	W. Silver Spring Drive to W. Bender Road (subreach of Upper Reach) (feet)
Existing Condition	7.4 to 8.7	6.3 to 9.2	2.4 to 9.1	2.4 to 5.0
Alternatives 1 and 1A Rehabilitated Dam (with and without fish passage)	7.4 to 8.7	6.3 to 9.2	2.4 to 9.1	2.4 to 5.0
Alternative 2 Dam Abandoned and Removed	0.7 to 2.5	1.6 to 4.5	0.8 to 4.5	1.5 to 2.1
Alternative 3 Dam Abandoned and Removed with a 5.5-Foot-High Rock Ramp Constructed	5.8 to 6.8	4.7 to 7.6	1.7 to 7.5	1.7 to 3.4
Alternative 3A Dam Abandoned and Removed with a Four-Foot-High Rock Ramp Constructed	4.3 to 5.3	3.6 to 6.5	1.5 to 6.4	1.5 to 2.5
Alternative 4 Gated Portion of Dam Abandoned and Removed with a 6.3-Foot-High Rock Ramp Constructed and Lowered and Rehabilitated Overflow Spillway	6.2 to 7.5	5.1 to 8.0	1.9 to 7.9	1.9 to 3.8

Source: SEWRPC.

Table 7

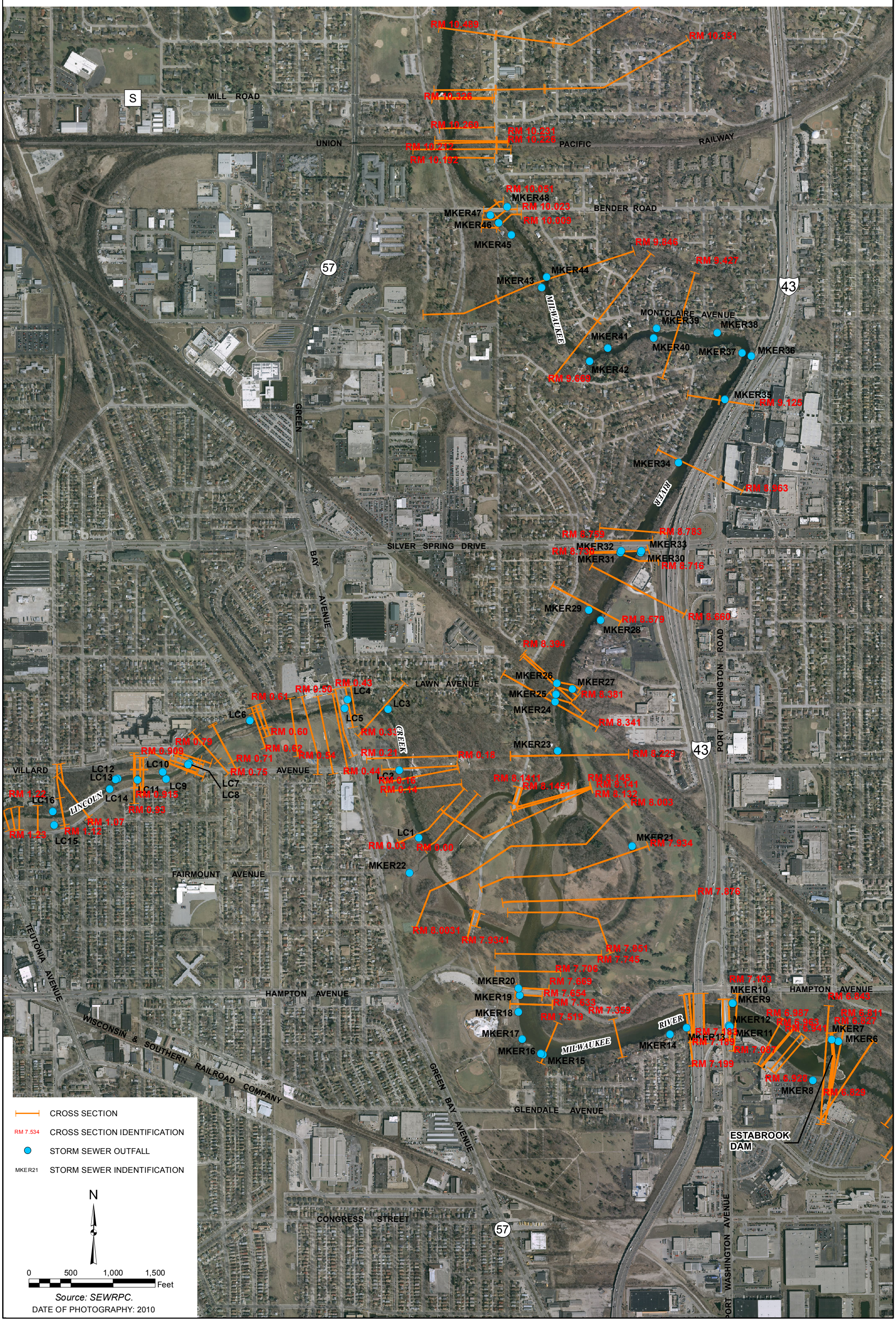
CHANGES IN ONE-PERCENT-ANNUAL-PROBABILITY WATER SURFACE ELEVATIONS AS COMPARED TO EXISTING CONDITIONS

Condition Alternative	Lower Reach (Estabrook dam or Rock Ramp to W. Hampton Avenue) (feet)	Middle Reach (W. Hampton Avenue to abandoned railroad bridge upstream of Lincoln Park) (feet)	Upper Reach (Abandoned Railroad Bridge Upstream of Lincoln Park to W. Bender Road) (feet)	W. Silver Spring Drive to W. Bender Road (subreach of Upper Reach) (feet)
Alternatives 1 and 1A Rehabilitated Dam (with and without fish passage)	0	0	0	0
Alternative 2 Dam Abandoned and Removed	-0.7 to -1.5	-0.5 to -0.7	0 to -0.5	0 to -0.3
Alternative 3 Dam Abandoned and Removed with a 5.5-Foot-High Rock Ramp Constructed	0.7 to 1.2	0.6 to 0.7	0 to 0.6	0 to 0.4
Alternative 3A Dam Abandoned and Removed with a Four-Foot-High Rock Ramp Constructed	-0.1 to -0.2	-0.1	0 to -0.1	0 to -0.1
Alternative 4 Gated Portion of Dam Abandoned and Removed with a 6.3-Foot-High Rock Ramp Constructed and Low-ered and Rehabilitated Overflow Spillway	-0.2 to -0.4	-0.2	0 to -0.2	0 to -0.1

Source: SEWRPC.

Exhibit 1

MILWAUKEE RIVER FROM ESTABROOK DAM THROUGH W. BENDER ROAD



Source: SEWRPC.

DATE OF PHOTOGRAPHY: 2010