

Table 5-1. Model hydraulic conductivity and effective porosity values, Menomonee Valley Brownfield study area, Milwaukee County, Wisconsin

Unit	Horizontal Hydraulic Conductivity, ¹ ft/day	Vertical Hydraulic Conductivity, ² ft/day	Effective Porosity ³
Fill/Estuary	4.0	0.0010	0.2
Channel ⁴	10.0	.1000	.2
Till	0.4	.0010	.1
Weathered Dol	5.0	.0050	.05
Dolomite	0.6	.0004	.01

¹ Horizontal hydraulic conductivity values used in both GFLOW and MODFLOW models

² Vertical hydraulic conductivity values calibrated to MODFLOW solution

³ Effective porosity values used to calculate travel times

⁴ Channel deposits only represented in MODFLOW model

Table 5-2. MODFLOW head calibration for the Menomonee Valley Brownfield study area, Milwaukee County, Wisconsin

[Residual = observed – simulated]

Total number of wells	101
wells in layer 1	79
wells in layer 2	8
wells in layer 3	13
wells in layer 4	1
Residual Mean	2.09 feet
Absolute Residual Mean	2.88 feet
Residual Standard Deviation	5.38 feet

Table 5-3. MODFLOW vertical gradient calibration for the Menomonee Valley Brownfield study area, Milwaukee County, Wisconsin

[Positive gradient is downward, Water table wells in model layer 1, Estuary wells in model layer 2, Till wells in model layer 3]

Well Nest	Measured gradient	Simulated gradient
Water table-Estuary	-0.043	-0.028
Water table-Till	.03	.18
Water table-Estuary	.06	.23
Water table-Till	.07	.35
Water table-Estuary	.12	.15
Water table-Estuary	.22	.27
Water table-Till	.27	.24
Water table-Drift	.27	.16
Water table-Till	.28	.19
Water table-Till	.28	.23
Water table-Till	.30	.24
Water table-Till	.30	.12
Water table-Till	.36	.32
Water table-Till	.41	.31
Water table-Till	.58	.51
Averages:		
Overall	.23	.23
Water table-Estuary	.09	.16
Water table-Till	.28	.26

Table 5-4. MODFLOW flux calibration for the Menomonee Valley Brownfield study area, Milwaukee County, Wisconsin

[mgd, million gallons per day; l/s, liters per second]

Tunnel segment	Measured flux,		Simulated flux,	
	mgd	l/s	mgd	l/s
Western Crosstown	13.2	0.300	17.2	0.393
Eastern Crosstown	32.9	.750	27.3	.624
Northshore	15.3	.350	15.1	.345
Kinnickinnic	8.8	.200	10.5	0.240
Lake Michigan	4.4	.100	7.2	.165
Total within local MODFLOW model	74.5	1.700	77.3	1.767