


Shingle Creek Watershed Management Commission Treasurer's Report

		2020 Budget	July	August	%age YTD	2020 YTD
REVENUE	%age					
Application Fees		23,000			34.78	8,000.00
Member Assessments		363,590			100.00	363,590.00
Blue Line Extension		1,000			-	-
Interest and Dividends		15,000	16.38		21.80	3,269.92
Education Reimbursement		33,000			54.55	18,000.00
Rain Garden Workshops		8,000			-	-
<i>Transfer to (from) Grants (see following pages)</i>			-	-		110,927.16
<i>Transfer to (from) CIPs</i>			167,095.10			167,095.10
<i>Transfer to (from) Closed Projects Account</i>						-
TOTAL REVENUE		443,590	167,111.48	-		670,882.18
EXPENSES						
ADMINISTRATION						
Administrative Services		71,000	5,769.82	4,694.64	57.35	40,717.71
Engineering Support		17,000	954.45	1,449.17	38.82	6,599.22
Project Reviews		1,500	342.86	185.41	53.34	800.11
Blue Line Extension		500				-
ENGINEERING						
Administration		62,000	8,252.56	5,102.05	81.48	50,517.71
Grant Application Writing		11,500	2,260.00	4,670.80	66.76	7,677.70
Project Reviews/WCA		45,000	2,336.30	1,671.00	36.32	16,345.60
Blue Line Extension		500				-
TMDL 5 Year Reviews		12,000	43.50		72.61	8,713.70
LEGAL - Legal Services		6,000	482.40	281.40	41.73	2,503.90
MISCELLANEOUS						
Bookkeeping		7,000	1,931.15	187.80	76.99	5,389.10
Audit		6,500		6,000.00	92.31	6,000.00
Insurance & Bonding		3,100			104.26	3,232.00
Meeting Expense		5,000			23.14	1,157.01
PROGRAMS						
Stream Monitoring		35,000	4,426.33	3,204.19	54.64	19,125.54
Stream Monitoring (USGS)		4,500			-	-
Lake Monitoring		24,000	8,415.74	1,966.50	70.71	16,971.49
Citizen Assisted Lake Monitoring (CAMP)		3,800	321.90	190.68	40.76	1,548.98
Volunteer Wetland Monitoring (WHEP)		2,000			-	-
Volunteer Stream Monitoring (River Watch)		1,000			-	-
Annual Monitoring Report		16,000			100.37	16,058.49
Water Quality Education						
Education Program		15,000	1,274.48	1,961.25	75.94	11,391.21
Education Grants		500			-	-
WMWA General Programs		20,000	519.40	287.86	26.30	5,260.01
WMWA Special Projects		6,500			-	-
WMWA Ed/Watershed Prep		18,000	76.25	128.25	24.26	4,366.60
Rain Garden Workshops		8,000			-	-
Management Plan/Amendments		1,000		97.91	29.21	292.09
Subwatershed BMP Assessment		20,000				-
Flood Modeling and Mapping		0	5,855.70	2,418.50		20,538.40
<i>Transfer to (from) Grants (see following pages)</i>			11,777.24	12,166.87		59,975.37
<i>Transfer to (from) CIPs</i>			289.43			7,806.22
<i>Transfer to (from) Partnership BMP Retrofits Fund</i>						43,510.00
<i>Transfer to (from) Closed Projects Account</i>						10,474.68
<i>To/From Reserves</i>		19,690				
TOTAL OPERATING EXPENSE		443,590	55,329.51	46,664.28		366,972.84
CASH SUMMARY						
4M Fund Balance at 12/31/19						463,980.58
Plus Revenue Received 2020 to date						855,719.99
Minus Claims Approved to Date						(351,298.76)
Minus Claims Presented Current Month						(46,664.28)
Fund Balance			968,401.81			921,737.53

Shingle Creek Watershed Management Commission Treasurer's Report

Claims Presented	General Ledger Acct No	July	August		Total
Kennedy & Graven					281.40
Legal - General	52001		281.40		
Johnson & Company, Ltd. - Audit	54003		6,000.00		6,000.00
Mary Amsden - WMWA Ed Services	57011		106.80		106.80
Mary Amsden - WMWA Ed Reimbursement	57012				
Sharon Meister - WMWA Ed Services	57011				-
Sharon Meister - WMWA Ed Reimbursement	57012				
Wenck Associates					33,300.59
General Engineering	51001		5,102.05		
Grant Writing	51005		4,670.80		
Project Reviews	51002		1,671.00		
Flood Modeling and Mapping	51015		2,418.50		
Plan Amendment	51007				
CAMP	56002		190.68		
Stream Monitoring	56004		3,204.19		
Lake Monitoring	56010		1,966.50		
TMDL 5-Year Reviews	56011				
Education	57008		1,910.00		
Education - WMWA	57009				
Annual Water Quality Report	58002				
Bass/Pomerleau Alum Trmt Grant	70727		5,022.90		
SRP Reduction Grant	70729		3,972.77		
Meadow Lake Mgt Plan Grant	70731				
Crystal Lake Management Plan Grant	70732		3,171.20		
Twin Lake Carp Management Follow-up	70809				
BioChar Filters Ongoing Management	70812				
Bass Creek Stream Restoration Feasibility Study	20910				
Judie Anderson's Secretarial Service					309.31
WMWA General Expense	57009		287.86		
WMWA Educators/WS Prep	57011		21.45		
Judie Anderson's Secretarial Service					6,666.18
Administration	53001		4,694.64		
Project and WCA Review Support	53002		185.41		
Bookkeeping / Audit Prep	54002		187.80		
Education Programs	57008		51.25		
Engineering Support	53004		1,449.17		
Engineering Support - CIP General	53004				
Engineering Support - Cost Share Projects	53004				
Engineering Support - Plan Amendment	53007		97.91		
Engineering Support - Becker Park Project	53004				
Total Claims					46,664.28
					
Judie A Anderson, Deputy Treasurer					

Shingle Creek Watershed Management Commission Treasurer's Report

	Total Grant	July	August	%age YTD	YTD
GRANTS					
Bass/Pomerleau Lakes Internal Load Reduction (BWSR C18)	267,040				
Revenue					106,816.00
Expense		4,508.65	5,022.90		30,605.84
Balance		(4,508.65)	(5,022.90)		76,210.16
BWSR Watershed Based Funding	103,571				
Revenue					-
Expense					-
Balance		-	-		-
SRP Reduction Project	72,170				
Revenue					2,073.66
Expense		2,351.96	3,972.77		15,057.86
Balance		(2,351.96)	(3,972.77)		(12,984.20)
Crystal Lake Management Plan (MPCA)					
Revenue					2,037.50
Expense		4,916.63	3,171.20		14,311.67
Balance		(4,916.63)	(3,171.20)		(12,274.17)
MN DNR Floodplain Modeling & Mapping	50,000				
Revenue					-
Expense					-
Balance		-	-		-
TOTAL GRANTS					
Revenue		-	-		110,927.16
Expense		11,777.24	12,166.87		59,975.37
Balance		(11,777.24)	(12,166.87)		50,951.79

**Shingle Creek Watershed Management Commission Treasurer's Report
Capital Improvement Project Tracking**

CIPs	Amount	%age	2009 - 2014	2015	2016	2017 TOTAL	2018 TOTAL	2019 TOTAL	Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	2020 TOTAL	GRAND TOTAL	
Ad Valorem 2007 - Maple Grove Pond 51		77.519																	COMPLETE
Ad Valorem 2007 - Wincrest Pond		22.481																	COMPLETE
Ad Valorem 2008 - Twin Oak Pond		72.093																	COMPLETE
Ad Valorem 2008 - 639W Wetland Feas		27.907																	COMPLETE
Ad Valorem 2009 - Crystal Lake		100.00																	COMPLETE
Ad Valorem 2010 - New Hope 45th Avenue Pond		13.693																	COMPLETE
Ad Valorem 2010 - Stream Stabilization I-94 to CR10		21.162																	COMPLETE
Ad Valorem 2010 - Minneapolis Greenway	250,000	41.494																	COMPLETE
Ad Valorem 2011 - Connections at SC	87,500	100.00																	COMPLETE
CIP 2012 -New Hope Bass Ck Bk Stabiliz	17,500	100.00																	COMPLETE
CIP 2014 -(Now 2018-06)Bass/Pomerleau Al	210,000	80.77																	TO 2018-06
CIP 2014 -Cost Share Projects Retrofit	50,000	19.23																	TO CS FUND
2015-01 Cost Share Retrofit Projects	100,000	31.50																	TO CS FUND
2015-02 DO Reearation Project	42,500	13.38																	CANCELLED
2015-03 Twin Lake Carp Management	125,000	39.37																	
Revenue			-	-	124,784.16	400.16	-	-										-	125,184.32
Expense			-	399.38	17,672.01	6,323.40	56,591.55	39,838.24										-	120,824.58
Balance			-	(399.38)	107,112.15	(5,923.24)	(56,591.55)	(39,838.24)	-	-	-	-	-	-	-	-	-	-	4,359.74
Tfer FROM Biochar CIP								5,919.49											5,919.49
2019 TLC Follow-up Expense								59.40											59.40
2019 Balance Restricted for TLC Follow-up																			10,219.83
2020 TLC Follow-up Expense									17.83	697.90	524.40	1,941.18	4,335.48	289.43			7,806.22		7,806.22
2020 Balance									(17.83)	(697.90)	(524.40)	(1,941.18)	(4,335.48)	(289.43)					2,413.61
2015-05 Private BMP Retrofits	50,000	15.75																	TO PTNR FUND
2016-01 Cost Share Retrofit Projects	101,000	27.78																	TO CS FUND
2016-02 Biochar Project	212,000	58.33																	
Revenue			-	-	-	210,003.41	-	-										-	210,003.41
Expense			-	-	5,358.76	167,159.35	10,738.44	15,689.26										-	199,083.92
Balance			-	-	(5,358.76)	42,844.06	(10,738.44)	(15,689.26)										-	10,919.49
Tfer all but \$5k to TL Carp Follow-up								5,919.49											5,919.49
\$5000 for Biochar Ongoing Management																			5,000.00
2019 Ongoing Management Expense								1,097.63											1,097.63
2019 Balance Restricted for Ongoing Mgt																			3,902.37
2020 Ongoing Management Expense																		-	-
2020 Balance for Ongoing Management																		-	3,902.37
2016-03 Priority BMP Retrofits	50,500	13.89																	TO PTNR FUND
2017-01 City Cost Share BMP Projects	106,050	66.67																	TO CS FUND
2017-03 Private Cost Share BMP Projects	53,025	33.33																	TO PTNR FUND
2018-01 City Cost Share BMP Projects	106,050	22.10																	TO CS FUND
2018-02 Private Cost Share BMP Projects	53,025	11.05																	TO PTNR FUND
2018-03 Becker Park Infiltration	265,125	55.24																	
2018-04 SRP Reduction Project	55,700	11.61																	
Revenue								55,193.99							524.61			524.61	55,718.60
Expense								124.04	36,217.67									-	36,341.71
Balance								(124.04)	18,976.32	-	-	-	-	-	524.61	-	524.61	-	19,376.89
2018-06 Bass/Pomerleau Alum (was 2014)																			
Revenue (CIP 2014 bal tferred to Closed Proj) in 2018)								144,294.17										-	144,294.17
Expense (paid from Closed Project)								119.40										-	119.40
Payment to City Plymouth 12/19 from Closed Project									111,392.92									-	111,392.92
Balance in Closed Project Acct									144,174.77									-	32,781.85

**Shingle Creek Watershed Management Commission Treasurer's Report
Capital Improvement Project Tracking**

CIPs	Amount	%age	2009 - 2014	2015	2016	2017 TOTAL	2018 TOTAL	2019 TOTAL	Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	2020 TOTAL	GRAND TOTAL	
2019-01 City Cost Share BMP Projects	106,050	19.11																	
Revenue															31,828.29		31,828.29	31,828.29	31,828.29
Expense								128.47											128.47
Balance								(128.47)							31,828.29		31,828.29	31,828.29	31,699.82
2019-02 Private Cost Share BMP Projects	56,050	10.10																	
Revenue															16,821.96		16,821.96	16,821.96	16,821.96
Expense								128.47											128.47
Payment to Twin Lake North Association														43,510.00			43,510.00	43,510.00	43,510.00
Balance								(128.47)						(43,510.00)	16,821.96		(26,688.04)	(26,688.04)	(26,816.51)
2019-03 Crystal Lake Management Plan	392,915	70.79																	
Revenue															117,920.24		117,920.24	117,920.24	117,920.24
Expense								128.47											128.47
Balance								(128.47)							117,920.24		117,920.24	117,920.24	117,791.77
TOTAL CIP																			
Revenue			920,151.18	250,931.92	316,845.29	360,734.39	301,734.97	475,400.44	-	-	-	-	-	-	167,095.10	-	167,095.10	2,044,730.38	2,044,730.38
Expense			845,825.68	1,751.85	73,860.06	199,447.93	69,239.05	91,745.17	-	17.83	697.90	524.40	1,941.18	4,335.48	289.43	-	7,806.22	446,591.46	446,591.46
From Closed Project Acct							5,650.47	-										-	5,650.47
Payment							250,000.00	(84,478.40)						43,510.00			43,510.00	704,030.38	704,030.38
Balance			74,325.50	249,180.07	242,985.23	(127,983.76)	(246,932.88)	(138,157.46)	-	(17.83)	(697.90)	(524.40)	(1,941.18)	(47,845.48)	166,805.67	-	123,585.10	898,850.03	898,850.03
COST SHARE FUND																			
CIP 2014 -Cost Share Projects Retrofit						2,292.58													2,292.58
2015-01 Cost Share Retrofit Projects						99,600.36		(43,623.05)											55,977.31
2016-01 Cost Share Retrofit Projects						49,883.33	(50,000.00)												(116.67)
2017-01 Cost Share Retrofit Projects						49,883.33	54,800.57	54,800.57											54,800.57
2018-01 City Cost Share BMP Projects								104,939.46											104,939.46
Balance Cost Share Fund																			217,893.25
PARTNERSHIP BMP RETROFITS FUND																			
2015-05 Private BMP Retrofits						49,680.71													49,680.71
2016-03 Priority BMP Retrofits						49,875.67													49,875.67
2017-03 Private Cost Share BMP Projects							51,034.68	(50,000.00)											1,034.68
2018-02 Private Cost Share BMP Projects								2,407.71											2,407.71
Balance Cost Share Fund																			102,998.77
CLOSED PROJECTS FUND																			
Ad Valorem 2007 - Maple Grove Pond 51																			4,521.73
Ad Valorem 2007 - Wincrest Pond																			13,858.64
Ad Valorem 2008 - Twin Oak Pond																			283.26
Ad Valorem 2008 - 639W Wetland Feas																			(4,126.49)
Ad Valorem 2009 - Crystal Lake																			209.10
Ad Valorem 2010 - New Hope 45th Avenue Pond																			26,859.62
Ad Valorem 2010 - Stream Stabilization I-94 to CR10																			38,285.30
Ad Valorem 2010 - Minneapolis Greenway								(5,650.47)											(5,650.47)
Ad Valorem 2011 - Connections at SC					6,296.39	1.02													6,297.41
CIP 2012 -New Hope Bass Ck Bk Stabiliz								(17,500.00)											(17,500.00)
2015-02 DO Reaearation Project					(12,032.42)	20,562.23													8,529.81
2016 BWSR Grant-Becker Park																			(1,277.56)
2018-03 Becker Park Infiltration								12,487.16											12,487.16
2018-06 Bass/Pomerleau Alum (was 2014 Plymouth Bass Lake Pond / Feasibility)							144,174.77	(111,392.92)											32,781.85
Meadow Lake Mgt Plan Grant								(4,998.94)											(4,998.94)
Bass Creek Stream Restoration Feasibility Study												(9,479.68)	(995.00)					(10,474.68)	(10,474.68)
Balance Cost Share Fund																			100,085.74

Kennedy & Graven, Chartered

200 South Sixth Street, Suite 470
Minneapolis, MN 55402

(612) 337-9300

41-1225694

July 24, 2020

Statement No. 155945

Shingle Creek Watershed Management Commission

Judie Anderson

JASS - Watershed Administrators
3235 Fernbrook Lane
Plymouth, MN 55447

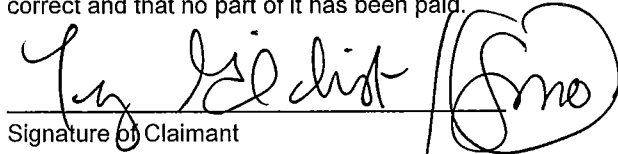
Through June 30, 2020

SH220-00001 General

281.40

Total Current Billing: 281.40

I declare, under penalty of law, that this
account, claim or demand is just and
correct and that no part of it has been paid.


Signature of Claimant

Kennedy & Graven, Chartered

200 South Sixth Street, Suite 470
Minneapolis, MN 55402

Shingle Creek Watershed
Judie Anderson

June 30, 2020

SH220-00001 General

Through June 30, 2020

For All Legal Services As Follows:

Hours Amount

6/11/2020 TJG Prepare for and participate in board meeting 1.40 281.40

Total Services: \$ 281.40

Total Services and Disbursements: \$ 281.40

Mary Amsden
 456 Third Street
 Excelsior, MN 55331

West Metro Water Alliance
 3235 Fernbrook Lane
 Plymouth, MN 55447

Invoice Date: July 31, 2020

Log of Services

Date	Description	Hours	Extended (\$40/hr)	Mileage	Extended (0.575/mi)	Supplies/Fees
4/14/2020	WMWA Meeting	1.00	40.00		-	
5/12/2020	WMWA Meeting	0.67	26.80		-	
			-		-	
Total - WMWA Meetings			\$ 66.80		\$ -	\$ -
4/16/2020	Zoom training	1.00	40.00		-	
			-		-	
			-		-	
			-		-	
			-		-	
			-		-	
Total - Program Development/Communication			\$ 40.00		\$ -	\$ -
			-		-	
			-		-	
			-		-	
			-		-	
			-		-	
Total-Classroom/Community Events			\$ -		\$ -	\$ -
Total:		2.67	\$ 106.80	-	\$ -	\$ -

Invoice Total \$ 106.80

106.80	57011	WMWA Ed Regular Services
-	57012	WMWA Ed Reimbursed Expense
106.80	TOTAL	

Johnson & Company, Ltd.
3255 Fernbrook Lane North
Minneapolis , MN 55447
(952) 525-9500

SHINGLE CREEK WATERSHED MANAGEMENT COMMISSION
3235 FERNBROOK LANE N
PLYMOUTH, MN 55447

Client # : 4283

Invoice Number : 42212

Invoice Date : Wednesday, July 15, 2020

For Professional Services Rendered :

Preparation of report on audited financial statements for the year ended December 31,
2019.

6,000.00

Total Invoice Amount

6,000.00

Invoice



August 10, 2020
Invoice No: 12005214

Ms. Judie Anderson
Shingle Creek Watershed Management Commission
3235 Fernbrook Lane
Plymouth, MN 55447

Responsive partner.
Exceptional outcomes.

Project Manager Edward Matthiesen

Project B001240-20-220 2020 General Engineering - Shingle Creek

Professional Services Through July 31, 2020

Phase 01 2020 General Engineering

2020 General Engineering

Professional Personnel

	Hours	Rate	Amount	
Matthiesen, Edward	11.40	200.00	2,280.00	
Megow, Erik	.50	148.00	74.00	
Spector, Diane	13.70	200.00	2,740.00	
Totals	25.60		5,094.00	
Total Labor				5,094.00

Unit Billing

00-WAI Vehicle Golden Valley **8.05**

Phase Total \$5,102.05

Total Invoice Amount \$5,102.05

Billing Summary	Current	Prior	Total
	5,102.05	45,415.66	50,517.71

Invoice

August 10, 2020
Invoice No: 12005215



Ms. Judie Anderson
Shingle Creek Watershed Management Commission
3235 Fernbrook Lane
Plymouth, MN 55447

Responsive partner.
Exceptional outcomes.

Project Manager Diane Spector

Project B001240-20-221 2020 Grant Writing - Shingle Creek

Professional Services Through July 31, 2020

Professional Personnel

	Hours	Rate	Amount	
Kemmitt, Katie	9.20	99.00	910.80	
Spector, Diane	18.80	200.00	3,760.00	
Totals	28.00		4,670.80	
Total Labor				4,670.80
		Total Invoice Amount		\$4,670.80

	Current	Prior	Total
Billing Summary	4,670.80	3,006.90	7,677.70

Invoice

August 10, 2020

Invoice No: 12005216



Ms. Judie Anderson
 Shingle Creek Watershed Management Commission
 3235 Fernbrook Lane
 Plymouth, MN 55447

Responsive partner.
 Exceptional outcomes.

Project Manager Edward Matthiesen

Project B001240-20-224 2020 Project Reviews - Shingle Creek

Professional Services Through July 31, 2020

Phase 01 General Project Reviews

General Project Reviews

Professional Personnel

	Hours	Rate	Amount	
Matthiesen, Edward	3.90	200.00	780.00	
Spector, Diane	1.00	200.00	200.00	
Totals	4.90		980.00	
Total Labor				980.00
		Phase Total		\$980.00

Phase 02 WCA

WCA

Professional Personnel

	Hours	Rate	Amount	
Dietrich, Meaghan	.50	123.00	61.50	
Matthiesen, Edward	.80	200.00	160.00	
Totals	1.30		221.50	
Total Labor				221.50
		Phase Total		\$221.50

Phase 04 CSAH 81 Bridges

CSAH 81 Bridges

Professional Personnel

	Hours	Rate	Amount	
Matthiesen, Edward	.80	200.00	160.00	
Totals	.80		160.00	
Total Labor				160.00
		Phase Total		\$160.00

Phase 09 D Line BRT Metro Transit

D Line BRT Metro Transit

Professional Personnel

	Hours	Rate	Amount	
Matthiesen, Edward	.30	200.00	60.00	
Totals	.30		60.00	
Total Labor				60.00

INVOICES ARE DUE UPON PRESENTATION. Subject to 1-1/2% 18% Annum interest/finance charge. Please reference the invoice number when sending payment. Federal Tax ID #41-1520095 -Wenck Associates, Inc.-1800 Pioneer Creek Center PO Box 249- Maple Plain, MN 55359-0249 Toll Free:800-472-2232 Main:763-479-4200 E-mail:accounting@wenck.com Web www.wenck.com

Phase Total \$60.00

Phase 10 Middle of the Blvd
Middle of the Blvd

Professional Personnel

	Hours	Rate	Amount	
Kemmitt, Katie	.50	99.00	49.50	
Matthiesen, Edward	1.00	200.00	200.00	
Totals	1.50		249.50	
Total Labor				249.50
		Phase Total		\$249.50
		Total Invoice Amount		\$1,671.00

	Current	Prior	Total
Billing Summary	1,671.00	14,674.60	16,345.60

Invoice

August 10, 2020
Invoice No: 12005211



Ms. Judie Anderson
Shingle Creek Watershed Management Commission
3235 Fernbrook Lane
Plymouth, MN 55447

Responsive partner.
Exceptional outcomes.

Project Manager Eileen Weigel

Project B001240-18-201 Shingle Creek HUC 8 Model Update

Professional Services Through July 31, 2020

Phase 01 Meetings
Meetings

Professional Personnel

	Hours	Rate	Amount	
Weigel, Eileen	2.00	158.00	316.00	
Totals	2.00		316.00	
Total Labor				316.00
		Phase Total		\$316.00

Phase 08 Ryan - Twin Lakes
Ryan - Twin Lakes

Professional Personnel

	Hours	Rate	Amount	
Megow, Erik	14.50	145.00	2,102.50	
Totals	14.50		2,102.50	
Total Labor				2,102.50
		Phase Total		\$2,102.50

Total Invoice Amount \$2,418.50

Billing Summary	Current	Prior	Total
	2,418.50	54,059.00	56,477.50

INVOICES ARE DUE UPON PRESENTATION. Subject to 1-1/2% 18% Annum interest/finance charge. Please reference the invoice number when sending payment. Federal Tax ID #41-1520095 -Wenck Associates, Inc.-1800 Pioneer Creek Center PO Box 249- Maple Plain, MN 55359-0249 Toll Free:800-472-2232 Main:763-479-4200 E-mail:accounting@wenck.com Web www.wenck.com

Invoice

August 10, 2020
Invoice No: 12005212



Ms. Judie Anderson
Shingle Creek Watershed Management Commission
3235 Fernbrook Lane
Plymouth, MN 55447

Responsive partner.
Exceptional outcomes.

Project Manager Diane Spector

Project B001240-20-218 2020 CAMP

Professional Services Through July 31, 2020

Professional Personnel

	Hours	Rate	Amount	
Stone, Alicia	2.00	87.00	174.00	
Totals	2.00		174.00	
Total Labor				174.00

Reimbursable Expenses

Mileage - Reimbursable			16.68	
Total Reimbursables			16.68	16.68

Total Invoice Amount \$190.68

	Current	Prior	Total
Billing Summary	190.68	1,358.30	1,548.98

Invoice

August 10, 2020
 Invoice No: 12005208



Responsive partner.
 Exceptional outcomes.

Ms. Judie Anderson
 Shingle Creek Watershed Management Commission
 3235 Fernbrook Lane
 Plymouth, MN 55447

Project Manager Diane Spector

Project B001240-20-225 2020 Stream Monitoring

Professional Services Through July 31, 2020

Professional Personnel

	Hours	Rate	Amount	
Hyams, Aaron	6.80	64.00	435.20	
Kemmitt, Katie	1.10	99.00	108.90	
Stone, Alicia	27.50	87.00	2,392.50	
Totals	35.40		2,936.60	
Total Labor				2,936.60

Outside Services

RMB Environmental Laboratories, Inc.	221.00			
Outside Services Total			221.00	221.00

Reimbursable Expenses

Mileage - Reimbursable			37.96	
Total Reimbursables			37.96	37.96

Unit Billing

00-WAI Vehicle Golden Valley				8.63
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Total Invoice Amount \$3,204.19

	Current	Prior	Total
Billing Summary	3,204.19	15,921.35	19,125.54

Invoice

August 10, 2020

Invoice No: 12005209



Ms. Judie Anderson
 Shingle Creek Watershed Management Commission
 3235 Fernbrook Lane
 Plymouth, MN 55447

Responsive partner.
 Exceptional outcomes.

Project Manager Diane Spector

Project B001240-20-222 2020 Lake Monitoring

Professional Services Through July 31, 2020**Professional Personnel**

	Hours	Rate	Amount	
Harley, Mehdi	3.50	64.00	224.00	
Hyams, Aaron	3.00	64.00	192.00	
Kemmitt, Katie	4.20	99.00	415.80	
Omodt, Nicholas	.40	99.00	39.60	
Stone, Alicia	6.30	87.00	548.10	
Totals	17.40		1,419.50	
Total Labor				1,419.50

Outside Services

RMB Environmental Laboratories, Inc.			347.00	
Outside Services Total			347.00	347.00

Unit Billing

01-Crestliner Boat				
01-Data Sonde - Hydrolab				200.00

Total Invoice Amount \$1,966.50

	Current	Prior	Total
Billing Summary	1,966.50	15,004.99	16,971.49

Invoice

August 10, 2020
Invoice No: 12005213



Ms. Judie Anderson
Shingle Creek Watershed Management Commission
3235 Fernbrook Lane
Plymouth, MN 55447

Responsive partner.
Exceptional outcomes.

Project Manager Diane Spector

Project B001240-20-219 2020 Education and Outreach

Professional Services Through July 31, 2020

Phase 01 General Education
General Education

Professional Personnel

	Hours	Rate	Amount	
Spector, Diane	19.10	200.00	3,820.00	
Totals	19.10		3,820.00	
Total Labor				3,820.00
		Phase Total		\$3,820.00
		Total Invoice Amount		\$3,820.00

Billing Summary	Current	Prior	Total
	3,820.00	17,789.40	21,609.40

SC - 1,910.00
WM - 1,910.00

Invoice

August 10, 2020
 Invoice No: 12005210



Ms. Judie Anderson
 Shingle Creek Watershed Management Commission
 3235 Fernbrook Lane
 Plymouth, MN 55447

Responsive partner.
 Exceptional outcomes.

Project Manager Diane Spector

Project B001240-18-200 Bass and Pomerleau Lakes Alum Treatment

Professional Services Through July 31, 2020

Phase 01 Technical Services

Technical Services

Professional Personnel

	Hours	Rate	Amount	
Spector, Diane	8.10	198.00	1,603.80	
Totals	8.10		1,603.80	
Total Labor				1,603.80
				Phase Total
				\$1,603.80

Phase 02 Lake WQ Monitoring

Lake WQ Monitoring

Professional Personnel

	Hours	Rate	Amount	
Kemmitt, Katie	8.20	97.00	795.40	
Stone, Alicia	6.60	86.00	567.60	
Totals	14.80		1,363.00	
Total Labor				1,363.00

Outside Services

RMB Environmental Laboratories, Inc.			347.00	
Outside Services Total			347.00	347.00
				Phase Total
				\$1,710.00

Phase 03 Follow-up Coring

Follow-up Coring

Professional Personnel

	Hours	Rate	Amount	
Bischoff, Joseph	.50	198.00	99.00	
Hyams, Aaron	.60	63.00	37.80	
Kemmitt, Katie	5.90	97.00	572.30	
Totals	7.00		709.10	
Total Labor				709.10

Outside Services

William F. James dba Aquatic Restoration			1,000.00	
Outside Services Total			1,000.00	1,000.00
				Phase Total
				\$1,709.10

INVOICES ARE DUE UPON PRESENTATION. Subject to 1-1/2% 18% Annum interest/finance charge. Please reference the invoice number when sending payment. Federal Tax ID #41-1520095 -Wenck Associates, Inc.-1800 Pioneer Creek Center PO Box 249- Maple Plain, MN 55359-0249 Toll Free:800-472-2232 Main:763-479-4200 E-mail:accounting@wenck.com Web www.wenck.com

Project	B001240-18-200	Bass and Pomerleau Lakes Alum Treatment	Invoice	12005210
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Total Invoice Amount	\$5,022.90
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	Current	Prior	Total
Billing Summary	5,022.90	65,551.57	70,574.47

Invoice

August 10, 2020

Invoice No: 12005217



Ms. Judie Anderson
 Shingle Creek Watershed Management Commission
 3235 Fernbrook Lane
 Plymouth, MN 55447

Responsive partner.
 Exceptional outcomes.

Project Manager Diane Spector

Project B001240-19-212 Shingle Creek SRP Reduction Project

Professional Services Through July 31, 2020

Phase 02 Filter Installation

Filter Installation

Professional Personnel

	Hours	Rate	Amount	
Scientist I				
Harley, Mehdi	4.50	78.09	351.41	
Kemmitt, Katie	1.70	78.09	132.75	
Totals	6.20		484.16	
Total Labor				484.16
				Phase Total \$484.16

Phase 03 Monitoring

Monitoring

Professional Personnel

	Hours	Rate	Amount	
Scientist I				
Harley, Mehdi	7.70	78.09	601.29	
Kemmitt, Katie	1.00	78.09	78.09	
Scientist III				
Kallio, Brian	1.20	137.52	165.02	
Totals	9.90		844.40	
Total Labor				844.40

Outside Services

RMB Environmental Laboratories, Inc.			220.00	
Outside Services Total			220.00	220.00

Unit Billing

00-WAI Vehicle Golden Valley				40.26
				Phase Total \$1,104.66

Phase 04 Evaluation

Evaluation

Professional Personnel

	Hours	Rate	Amount	
Scientist I				
Kemmitt, Katie	3.10	78.09	242.08	

Scientist II				
Kallio, Brian		2.30	97.48	224.20
Totals		5.40		466.28
Total Labor				466.28
			Phase Total	\$466.28

Phase	05	Information Sharing		
Information Sharing				
Professional Personnel				
		Hours	Rate	Amount
Project Manager				
Spector, Diane		.50	137.52	68.76
Scientist I				
Kemmitt, Katie		3.30	78.09	257.70
Scientist II				
Kallio, Brian		8.00	97.48	779.84
Scientist III				
Bischoff, Joseph		1.00	137.52	137.52
Kallio, Brian		1.10	137.52	151.27
Matthiesen, Edward		.50	137.52	68.76
Totals		14.40		1,463.85
Total Labor				1,463.85
			Phase Total	\$1,463.85

Phase	06	Semiannual/Annual Reports		
Semiannual/Annual Reports				
Professional Personnel				
		Hours	Rate	Amount
Project Manager				
Spector, Diane		3.30	137.52	453.82
Totals		3.30		453.82
Total Labor				453.82
			Phase Total	\$453.82
			Total Invoice Amount	\$3,972.77

	Current	Prior	Total
Billing Summary	3,972.77	101,587.41	105,560.18

Invoice

August 10, 2020

Invoice No: 12005207



Ms. Judie Anderson
 Shingle Creek Watershed Management Commission
 3235 Fernbrook Lane
 Plymouth, MN 55447

Responsive partner.
 Exceptional outcomes.

Project Manager Diane Spector

Project B001240-20-216 Crystal Lake Management Plan

Professional Services Through July 31, 2020

Phase 01A Dosing

Dosing

Professional Personnel

	Hours	Rate	Amount	
Spector, Diane	1.00	200.00	200.00	
Totals	1.00		200.00	
Total Labor				200.00

Outside Services

William F. James dba Aquatic Restoration			1,000.00	
Outside Services Total			1,000.00	1,000.00

Phase Total \$1,200.00

Phase 01C Water Quality Monitoring

Water Quality Monitoring

Professional Personnel

	Hours	Rate	Amount	
Harley, Mehdi	2.00	64.00	128.00	
Kemmitt, Katie	3.50	99.00	346.50	
Stone, Alicia	6.30	87.00	548.10	
Totals	11.80		1,022.60	
Total Labor				1,022.60

Outside Services

RMB Environmental Laboratories, Inc.			156.00	
Outside Services Total			156.00	156.00

Phase Total \$1,178.60

Phase 02A Carp Assessment & Tracking

Carp Assessment & Tracking

Professional Personnel

	Hours	Rate	Amount	
Omodt, Nicholas	.50	99.00	49.50	
Totals	.50		49.50	
Total Labor				49.50

Phase Total \$49.50

Phase 04 Semi-annual & Final Report

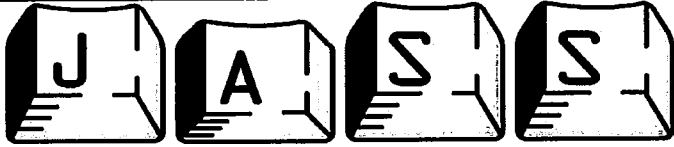
INVOICES ARE DUE UPON PRESENTATION. Subject to 1-1/2% 18% Annum interest/finance charge. Please reference the invoice number when sending payment. Federal Tax ID #41-1520095 -Wenck Associates, Inc.-1800 Pioneer Creek Center PO Box 249- Maple Plain, MN 55359-0249 Toll Free:800-472-2232 Main:763-479-4200 E-mail:accounting@wenck.com Web www.wenck.com

Semi-annual & Final Report

Professional Personnel

	Hours	Rate	Amount	
Kemmitt, Katie	6.90	99.00	683.10	
Spector, Diane	.30	200.00	60.00	
Totals	7.20		743.10	
Total Labor				743.10
		Phase Total		\$743.10
		Total Invoice Amount		\$3,171.20

	Current	Prior	Total
Billing Summary	3,171.20	11,140.47	14,311.67



Your Virtual Administrator

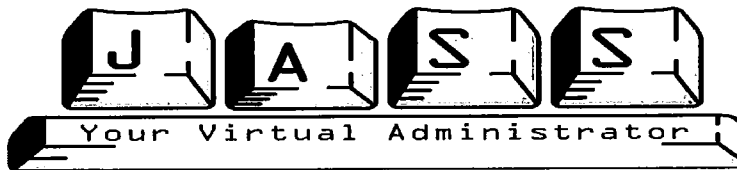
3235 Fernbrook Lane Plymouth MN 55447

Shingle Creek Watershed Management Commission
 3235 Fernbrook Lane
 Plymouth MN 55447

10-Aug-20

Re: 2020 WMWA General Expense and Watershed PREP

	Description	Rate	Hours/ No.	Amount	Total
General Expense					
Secretarial				-	
Secretarial		60.00		-	
Administrative		65.00	2.06	133.90	
Administrative - website, Facebook, Twitter		65.00		-	
Offsite, WMWA meetings, Blue Thumb, Watershed Partners, Home Expo, Henn County, city events		70.00	2.17	151.90	
Website hosting, domain registration two year				-	
Reimbursables		1.00	2.06	2.06	
	Total General Expense				287.86
Watershed PREP					
Secretarial				-	
Administrative		65.00	0.33	21.45	
Offsite					
Reimbursables		1.00		-	
	Total Watershed PREP				21.45
	Total this invoice				309.31
	Partner Share				77.33



3235 Fernbrook Lane
Plymouth MN 55447

Shingle Creek / West Mississippi Watershed Management Commissions
3235 Fernbrook Lane
Plymouth, MN 55447


August 10, 2020

	Share	G/L	Shingle Creek			West Mississippi			Total Project Area	
			SC	WM		SC	WM	SC	WM	
Administrative		53001	0.25	60.00	15.00	0.25	60.00	15.00		
Administrative	70-30	53001		60.00	-		60.00	-		
Administrative		53001	2.64	65.00	171.60	2.32	65.00	150.80		
Administrative	70-30	53001	38.62	65.00	1,757.21		65.00	753.09		
Admin - virtual meeting	70-30	53001	2.25	70.00	110.25		70.00	47.25		
Office Support	70-30	53001	12.00	200.00	1,680.00		200.00	720.00		
Data Processing/File Mgmt		53001	1.50	55.00	82.50		55.00	-		
Data Processing/File Mgmt		53001	1.67	60.00	100.20	0.75	60.00	45.00		
Admin Reimbursables		53001	777.88	1.00	777.88	187.92	1.00	187.92	4,694.640	1,919.060
Bookkeeping		54022	1.92	65.00	124.80	0.75	65.00	48.75		
Audit Prep		54022	1.05	60.00	63.00	0.45	60.00	27.00		
Audit Prep		54022		65.00	-		65.00	-	187.800	75.750
Project / WCA Reviews - Admin		53002		65.00	-		65.00	-		
Project Reviews - File Mgmt		53002		55.00	-		55.00	-		
Reimbursable Expenses		53002	6.66	1.00	6.66		1.00	-	185.410	-
Education - Admin	50-50	57008		65.00	-		60.00	-		
Education - Admin - virtual	50-50	57008	1.00	70.00	35.00		70.00	35.00		
Education - NPDES	50-50	57008		65.00	-		65.00	-		
Education Grant	50-50	57007		65.00	-		65.00	-		
Website	50-50	57008		60.00	-		55.00	-		
Website	50-50	57008	0.50	65.00	16.25		60.00	16.25		
Education Reimbursables	50-50	57008		1.00	-		1.00	-	51.250	51.250
Engrg Support 3G Plan - Admin	70-30	53004	1.72	65.00	78.26		60.00	33.54		
Engrg Support 3G Plan - Offiste	70-30	53004		70.00	-		65.00	-		
Engrg Support 3G Plan Rembursak	70-31	53004	28.07	1.00	19.65		1.00	8.42	97.909	41.961
Engineering Support - Admin		53004	7.53	65.00	489.45		60.00	-		
Engineering Support - Admin	70-30	53004	16.35	65.00	743.93		60.00	318.83		
Engineering Support - virtual	70-30	53004	3.59	70.00	175.91		70.00	75.39		
Engineering Support Rembursable:	70-30	53004		1.00	39.89		1.00	17.09	1,449.175	411.305
					6,666.18			2,499.33	6,666.184	2,499.326

**West Mississippi Watershed Management Commission
Treasurer's Report**

	2020 Budget	July	August	%age YTD	2020 YTD
REVENUE					
Application Fees	18,000			52.22	9,400.00
Member Assessments	153,600			100.00	153,600.00
Blue Line Extension	1,000				-
Interest & Dividend Income	5,000	10.83		48.41	2,420.45
Miscellaneous Income					-
<i>Transfer to (from) CIPs (see CIP Tracker page)</i>		27,632.85			27,632.85
<i>To (From) Reserve</i>					-
TOTAL REVENUE	177,600	27,643.68	-		193,053.30
EXPENSES					
ADMINISTRATION					
Administrative Services	31,000	2,401.41	1,919.06	62.14	19,263.93
Engineering Support	4,500	112.21	411.31	49.58	2,231.10
Project Reviews	1,500			37.67	565.01
Blue Line Extension	500				
ENGINEERING					
Administration	31,000	3,560.00	2,200.00	82.18	25,475.70
Grant Application Writing	1,000			24.35	243.50
Project Review	27,600	1,448.20	1,124.40	48.69	13,438.35
Blue Line Extension	500			0.00	-
LEGAL					
Legal Services	5,000	261.30	281.40	38.02	1,900.90
MISCELLANEOUS					
Bookkeeping	3,000	624.65	75.75	65.86	1,975.70
Audit	5,500		4,500.00	81.82	4,500.00
Insurance & Bonding	2,800			115.43	3,232.00
Meeting Expense	2,700			18.37	495.86
PROJECTS					
Volunteer Wetland Monitoring (WHEP)	2,000			0.00	-
Macroinvertebrate Monitoring (River Watch)	1,000			0.00	-
Outfall and Stream Monitoring	20,000	1,409.23	1,287.28	34.95	6,989.89
Annual Water Quality Report	8,000			86.03	6,882.21
Water Quality Education					
Education	15,000	1,274.48	1,961.25	75.94	11,391.21
Education Grants	500			0.00	-
WMWA General Programs	5,000			60.00	3,000.00
WMWA Special Projects	2,000			50.00	1,000.00
WMWA Educators/Watershed Prep	4,500			44.44	2,000.00
Rain Garden Workshops	2,000			31.25	625.00
Management Plan/Amendments	1,000		41.96	12.52	125.18
Flood modeling and mapping	0				-
<i>Transfer to (from)CIPs</i>					-
<i>To (from) Reserves</i>					-
TOTAL OPERATING EXPENSE	177,600	11,091.48	13,802.41		105,335.54
CASH SUMMARY					
4M Fund Balance at 12/31/19					543,439.02
Plus Revenue Received to Date					193,170.82
Minus Claims Approved to Date					(101,887.70)
Minus Claims Presented Current Month					(13,802.41)
Fund Balance		634,722.14			620,919.73

**West Mississippi Watershed Management Commission
Treasurer's Report**

Claims Presented	General Ledger Acct No	July	August		
					Total
Kennedy & Graven					281.40
Legal - General	52001		281.40		
Johnson & Company, Ltd. - Audit	54003		4,500.00		4,500.00
Wenck Associates					6,521.68
General Engineering	51001		2,200.00		
Project Reviews	51002		1,124.40		
Grant Applica/Research	51005				
Plan Amendment	51007				
Education Program	57008		1,910.00		
Water Monitoring Program	58011		1,287.28		
Judie Anderson's Secretarial Service					2,499.33
Administration	53001		1,919.06		
Bookkeeping / Audit Prep	54002		75.75		
Project and WCA Review Support	53002				
Education Programs	57008		51.25		
Engineering Support	53004		411.31		
Engineering Support - Plan Amendment	53007		41.96		
Total Claims					13,802.41
					
Judie A Anderson, Deputy Treasurer					

**West Mississippi Watershed Management Commission Treasurer's Report
Capital Improvement Project Tracking**

CIPs	Amount	%age	TOTAL 2017	TOTAL 2018	TOTAL 2019	JAN 2020	FEB 2020	MAR 2020	APR 2020	MAY 2020	JUN 2020	JUL 2020	AUG 2020	TOTAL 2020	TOTAL ALL YEARS
2013-02 Mill Pond Dam Strm Stabilization	125,000	100.000													COMPLETE
2014-03 Cost Share Retrofits	50,000	100.000													TO CS FUND
2015-06 Cost Share Retrofits	50,000	100.000													TO CS FUND
2016-04 Cost Share Retrofits	50,500	38.462													TO CS FUND
2016-05 BioChar Project	80,800	61.538													COMPLETE
2017-04 City Cost Share BMP Projects	50,000	47.710													TO CS FUND
2017-05 Mississippi Crossings Rain Garden	54,800	52.290													
Revenue			-	54,458.05	98.94										54,556.99
Expense			128.47	-	-										128.47
Balance			(128.47)	54,458.05	98.94										54,428.52
2018-05 City Cost Share BMP Projects	53,025	100.000													TO CS FUND
2019-04 City Cost Share BMP Projects	56,050	100.000													
Revenue			-	-	-							27,632.85		27,632.85	27,632.85
Expense			-	-	128.47									-	128.47
Balance			-	-	(128.47)							27,632.85		27,632.85	27,504.38
TOTAL CIP															
Revenue			130,929.32	104,146.20	53,146.86	-	-	-	-	-	-	27,632.85	-	27,632.85	539,041.69
Expense			256.94	124.04	128.47	-	-	-	-	-	-	-	-	-	3,210.13
Transfer from Assigned Construction/Grant Match			5,680.39		-										5,680.39
Transfer General Funds to Cover Shortfall			-	3,435.12	-										3,435.12
Payment			86,117.50	125,000.00	-										211,117.50
Balance			(99,177.84)	(67,102.40)	94.51	-	-	-	-	-	-	27,632.85	-	27,632.85	81,932.90
COST SHARE FUND															
2014-03 Cost Share Retrofits	50,000	100.000	49,551.86												49,551.86
2015-06 Cost Share Retrofits	50,000	100.000	49,636.59												49,636.59
2016-04 Cost Share Retrofits	50,500	38.462	50,224.66												50,224.66
2017-04 City Cost Share BMP Projects	50,000	47.710		49,559.68											49,559.68
2018-05 City Cost Share BMP Projects	53,025	100.000			52,923.88										52,923.88
Balance Cost Share Fund															251,896.67
TOTAL BALANCE CIP & Other Funds															333,829.57

Kennedy & Graven, Chartered

200 South Sixth Street, Suite 470
Minneapolis, MN 55402

(612) 337-9300

41-1225694

July 24, 2020

Statement No. 155952

West Mississippi Watershed Management Commission

JASS - Watershed Administrators
3235 Fernbrook Lane
Plymouth, MN 55447

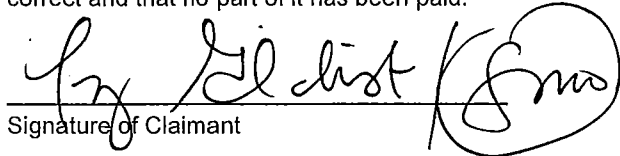
Through June 30, 2020

WE405-00001 General

281.40

Total Current Billing: 281.40

I declare, under penalty of law, that this account, claim or demand is just and correct and that no part of it has been paid.


Signature of Claimant

Kennedy & Graven, Chartered

200 South Sixth Street, Suite 470
Minneapolis, MN 55402

West Mississippi Watershed

June 30, 2020

WE405-00001 General

Through June 30, 2020

For All Legal Services As Follows:

			Hours	Amount
6/11/2020	TJG	Prepare for and participate in board meeting	1.40	281.40
		Total Services:	\$	281.40
		Total Services and Disbursements:	\$	281.40

Johnson & Company, Ltd.
3255 Fernbrook Lane North
Minneapolis , MN 55447
(952) 525-9500

WEST MISSISSIPPI WATERSHED MANAGEMENT COMMISSION
3235 FERNBROOK LANE N
PLYMOUTH, MN 55447

Client # : 4284

Invoice Number : 42213

Invoice Date : Wednesday, July 15, 2020

For Professional Services Rendered :

Preparation of report on audited financial statements for the year ended December 31,
2019.

4,500.00

Total Invoice Amount

\$4,500.00

Invoice

August 8, 2020
Invoice No: 12005205



Responsive partner.
Exceptional outcomes.

Ms. Judie Anderson
West Mississippi Watershed Management Commission
3235 Fernbrook Lane
Plymouth, MN 55447

Project Manager Edward Matthiesen

Project B001241-20-078 2020 General Engineering - West Mississippi

Professional Services Through July 31, 2020

Professional Personnel

	Hours	Rate	Amount	
Matthiesen, Edward	3.80	200.00	760.00	
Spector, Diane	7.20	200.00	1,440.00	
Totals	11.00		2,200.00	
Total Labor				2,200.00
		Total Invoice Amount		\$2,200.00

	Current	Prior	Total
Billing Summary	2,200.00	23,275.70	25,475.70

Invoice

August 11, 2020
 Invoice No: 12005442



Ms. Judie Anderson
 West Mississippi Watershed Management Commission
 3235 Fernbrook Lane
 Plymouth, MN 55447

Responsive partner.
 Exceptional outcomes.

Project Manager Edward Matthiesen

Project B001241-20-082 2020 Project Reviews

Professional Services Through July 31, 2020

Phase 01 General Project Reviews

General Project Reviews

Professional Personnel

	Hours	Rate	Amount	
Matthiesen, Edward	3.10	200.00	620.00	
Totals	3.10		620.00	
Total Labor				620.00
				Phase Total
				\$620.00

Phase 02 WCA

WCA

Professional Personnel

	Hours	Rate	Amount	
Dietrich, Meaghan	2.80	123.00	344.40	
Matthiesen, Edward	.40	200.00	80.00	
Totals	3.20		424.40	
Total Labor				424.40
				Phase Total
				\$424.40

Phase 19010 Mississippi Crossing

Mississippi Crossing

Professional Personnel

	Hours	Rate	Amount	
Matthiesen, Edward	.40	200.00	80.00	
Totals	.40		80.00	
Total Labor				80.00
				Phase Total
				\$80.00

Total Invoice Amount \$1,124.40

	Current	Prior	Total
Billing Summary	1,124.40	12,073.95	13,198.35

Invoice

August 10, 2020
Invoice No: 12005213



Ms. Judie Anderson
Shingle Creek Watershed Management Commission
3235 Fernbrook Lane
Plymouth, MN 55447

Responsive partner.
Exceptional outcomes.

Project Manager Diane Spector

Project B001240-20-219 2020 Education and Outreach

Professional Services Through July 31, 2020

Phase 01 General Education

General Education

Professional Personnel

	Hours	Rate	Amount	
Spector, Diane	19.10	200.00	3,820.00	
Totals	19.10		3,820.00	
Total Labor				3,820.00
				Phase Total
				\$3,820.00
				Total Invoice Amount
				\$3,820.00

	Current	Prior	Total
Billing Summary	3,820.00	17,789.40	21,609.40

SC - 1,910.00

WM - 1,910.00

Invoice

August 8, 2020
Invoice No: 12005203



Responsive partner.
Exceptional outcomes.

Ms. Judie Anderson
West Mississippi Watershed Management Commission
3235 Fernbrook Lane
Plymouth, MN 55447

Project Manager Diane Spector

Project B001241-20-080 2020 Outfall and Stream Monitoring

Professional Services Through July 31, 2020

Professional Personnel

	Hours	Rate	Amount	
Hyams, Aaron	2.50	64.00	160.00	
Kemmitt, Katie	1.00	99.00	99.00	
Stone, Alicia	10.80	87.00	939.60	
Totals	14.30		1,198.60	
Total Labor				1,198.60

Outside Services

RMB Environmental Laboratories, Inc.			49.00	
Outside Services Total			49.00	49.00

Reimbursable Expenses

Mileage - Reimbursable			17.25	
Total Reimbursables			17.25	17.25

Unit Billing

00-WAI Vehicle Golden Valley				22.43
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Total Invoice Amount \$1,287.28

	Current	Prior	Total
Billing Summary	1,287.28	5,702.61	6,989.89



3235 Fernbrook Lane
Plymouth MN 55447

Shingle Creek / West Mississippi Watershed Management Commissions
3235 Fernbrook Lane
Plymouth, MN 55447

August 10, 2020

	Share	G/L	Shingle Creek			West Mississippi			Total Project Area	
			SC	WM		SC	WM	SC	WM	
Administrative		53001	0.25	60.00	15.00	0.25	60.00	15.00		
Administrative	70-30	53001		60.00	-		60.00	-		
Administrative		53001	2.64	65.00	171.60	2.32	65.00	150.80		
Administrative	70-30	53001	38.62	65.00	1,757.21		65.00	753.09		
Admin - virtual meeting	70-30	53001	2.25	70.00	110.25		70.00	47.25		
Office Support	70-30	53001	12.00	200.00	1,680.00		200.00	720.00		
Data Processing/File Mgmt		53001	1.50	55.00	82.50		55.00	-		
Data Processing/File Mgmt		53001	1.67	60.00	100.20	0.75	60.00	45.00		
Admin Reimbursables		53001	777.88	1.00	777.88	187.92	1.00	187.92	4,694.640	1,919.060
Bookkeeping		54022	1.92	65.00	124.80	0.75	65.00	48.75		
Audit Prep		54022	1.05	60.00	63.00	0.45	60.00	27.00		
Audit Prep		54022		65.00	-		65.00	-	187.800	75.750
Project / WCA Reviews - Admin		53002		65.00	-		65.00	-		
Project Reviews - File Mgmt		53002		55.00	-		55.00	-		
Reimbursable Expenses		53002	6.66	1.00	6.66		1.00	-	185.410	-
Education - Admin	50-50	57008		65.00	-		60.00	-		
Education - Admin - virtual	50-50	57008	1.00	70.00	35.00		70.00	35.00		
Education - NPDES	50-50	57008		65.00	-		65.00	-		
Education Grant	50-50	57007		65.00	-		65.00	-		
Website	50-50	57008		60.00	-		55.00	-		
Website	50-50	57008	0.50	65.00	16.25		60.00	16.25		
Education Reimbursables	50-50	57008		1.00	-		1.00	-	51.250	51.250
Engrg Support 3G Plan - Admin	70-30	53004	1.72	65.00	78.26		60.00	33.54		
Engrg Support 3G Plan - Offiste	70-30	53004		70.00	-		65.00	-		
Engrg Support 3G Plan Rembursat	70-31	53004	28.07	1.00	19.65		1.00	8.42	97.909	41.961
Engineering Support - Admin		53004	7.53	65.00	489.45		60.00	-		
Engineering Support - Admin	70-30	53004	16.35	65.00	743.93		60.00	318.83		
Engineering Support - virtual	70-30	53004	3.59	70.00	175.91		70.00	75.39		
Engineering Support Rembursable:	70-30	53004		1.00	39.89		1.00	17.09	1,449.175	411.305
					6,666.18			2,499.33	6,666.184	2,499.326

SHINGLE CREEK WATERSHED MANAGEMENT COMMISSION

PROJECT REVIEW SC2020-007: Middle of the Boulevard

Owner: Linda McGinty
Company: Luther Company, LLLP
Address: 3701 Alabama Avenue South, St. Louis Park, MN 55416

Engineer: Sean Murphy
Company: Landform Professional Services
Address: 105 South Fifth Avenue, Suite 513

Phone: 612-638-0244

Email: smurphy@landform.net

Purpose: Demolition of 2 structures and construction of a parking area on 11.5 acres. The applicant is requesting approval of the grading and erosion control plans only at this time

Location: Three Parcels Adjacent to 7417 Brooklyn Blvd, bound by Brooklyn Blvd and Regent Ave in Brooklyn Park (Figure 1).

- Exhibits:**
1. Project review application and project review fee of \$2,200, dated 07/30/2020, received 07/30/2020.
 2. Site plan, preliminary plat, grading (Figure 2), utility, erosion control, and landscaping plans dated and received 8/11/2020 (first submittal dated 07/28/2020, received 07/30/2020)

- Findings:**
1. The proposed project is the destruction of 2 existing structures and the construction of a parking lot and associated landscaping. The site is 11.5 acres. Following development, the site will be 85 percent impervious with 9.8 acres of impervious surface, an increase of 0.25 acres. This review is for the grading and erosion control plans for the site. Due to soils data received 8/12/2020 showing peat instead of the assumed sand, the stormwater management plan must be redesigned. We anticipate review of the updated stormwater plan before the September Commission meeting.
 2. The project application was received on 07/30/2020. To comply with the 60-day review requirement, the Commission must approve or deny this project no later than the September 10, 2020 meeting. Sixty calendar-days expires on September 28, 2020.
 3. The erosion control plan includes rock construction entrances, perimeter silt fence/biolog, silt fence surrounding detention ponds/infiltration basins, inlet protection on existing outlets, rip rap at inlets, slope checks, and native seed specified on the pond slopes. The erosion control plan meets Commission requirements.
 4. The National Wetlands Inventory does not identify any wetlands on site. The applicant meets Commission wetland requirements.
 5. There are no Public Waters on this site.

SC2020-007:

6. There is FEMA 100-year floodplain on the southern portion of this site. The FEMA 100-year flood elevation is 859.1 ft. No buildings are proposed. The proposed grading will result in a net storage increase of 722 cubic yards. The applicant meets Commission floodplain requirements.
7. The site is not located in a Drinking Water Management Area (DWSMA). The applicant meets Commission drinking water protection requirements.
8. Public hearings on the project have been conducted on 5/13/2020 and 5/26/2020 as part of Planning Commission and City Council review of this project, meeting Commission public notice requirements.
9. A draft Operations & Maintenance (O&M) agreement between the applicant and the City of Brooklyn Park was provided.
10. A Project Review Fee of \$2,200 has been received.

Recommendation: Recommend approval with no conditions for the site grading and erosion control plans.

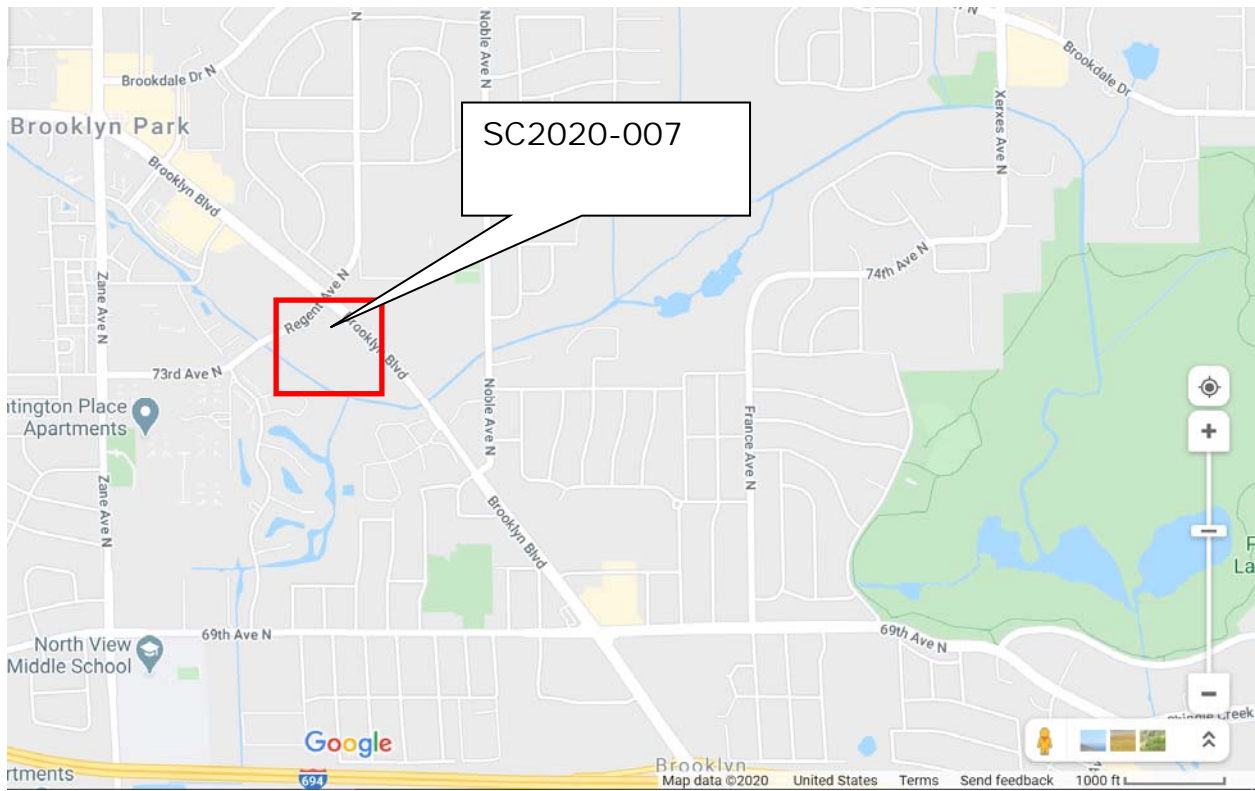
Wenck Associates, Inc.
Engineers for the Commission

Ed Matthiesen, P.E.

Date

SC2020-007:

Figure 1. Site location.



SC2020-007:

Figure 2. Site grading plan.



Meadow Lake Management Plan
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2020 Clean Water Fund Projects and Practices Questions

(Remember these are to be submitted in eLink)

(Limited to 2000 characters unless noted)

Project Abstract: *Succinctly describe what you are trying to achieve and how you intend to achieve those results, including the type and quantity of projects and/or practices included in the application budget and anticipated outcomes.*

Meadow Lake is a small, urban lake in the City of New Hope. The lake is listed as an impaired water for excess nutrients and suffers from nuisance levels of curly-leaf pondweed and fathead minnows. Reducing watershed phosphorus (P) loading to the lake has been a priority since implementation of the lake's TMDL, and many BMP's have been installed; however, internal P loading to the lake is still significant and preventing improvement in the lake's condition. In this project, internal P loading to Meadow Lake will be reduced by approximately 110 lbs/year through a lake drawdown and two aluminum sulfate treatments.

This application is for Phase II of this project, which includes water quality, sediment, fish, and submersed aquatic vegetation (SAV) monitoring following a whole-lake draw down (Phase I) in Fall 2020 and two doses of aluminum sulfate treatment to control phosphorus (P) release from lake sediments. Anticipated outcomes of the project aside from reduced lake P loading include increased water clarity, reduced chlorophyll-a concentrations, and a diverse native aquatic vegetation community.

Proposed Measurable Outcomes: *In 250 characters or less, state the proposed measurable outcomes of the project.*

- Reduce internal P loading
- Improve water clarity and chlorophyll-a concentrations to meet the NCHF shallow lake standard
- Eliminate the fathead minnow population
- Reduce curly-leaf pondweed density and restore native vegetation community
- Consolidate lake sediments

Does your organization have any active CWF competitive grants? If so, specify FY and percentage spent. Also, explain your organization's capacity (including available FTEs or contracted resources) to effectively implement additional Clean Water Fund grant dollars.

FY2018 Bass and Pomerleau Lakes Internal Load Reduction – 65%. The second alum application will occur this fall, followed in the spring by final sediment cores and SAV management. The project will be complete by mid-2021.

FY2017 Minneapolis Subwatershed Assessment – 99%. The assessment is complete and has been reviewed, final virtual public input and review expected fall 2020.

The Commission's technical services are provided by Wenck Associates, Inc, a consulting firm with over 275 FTEs, approximately 60 of whom provide water resources services. Staff are available to ensure the work is completed.

Meadow Lake Management Plan
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Water Resource: *Identify the water resource the application is targeting for water quality protection or restoration.*

Meadow Lake, 27-0057-00, in the City of New Hope in Hennepin County.

Prioritization (Relationship to Plan): Question 1. (17 points): (A) *Describe why the water resource was identified in the plan as a priority resource. For the proposed project, identify the specific water management plan reference by plan organization (if different from the applicant), plan title, section, and page number.*

Thirteen of the 16 lakes in the Shingle Creek watershed were designated as Impaired Waters for excess nutrients, and TMDLs were completed during 2007-2010. Stakeholders have focused on reducing TP load from the watershed to the lakes, and since that time three lakes have been delisted due to improved water quality. Internal load management has been completed or is in progress on 5 of the remaining 10 lakes. The City of New Hope and the Meadow Lake Watershed Association (MLWA) have implemented best management practices and achieved approximately a watershed phosphorus load reduction of approximately 42 lbs/year to Meadow Lake. The internal phosphorus loading to the lake must be addressed next to achieve the watershed's nutrient reduction goals.

The Commission's Watershed Management Plan established as its number one priority for the period 2013-2022: "Work aggressively toward achieving TMDL lake and stream goals (p. 4-4)." Furthermore, in addition to establishing a stretch goal to achieve delisting of four additional lakes (Goal B.2.), Goal B.3. of the Plan is to "Improve water clarity in the balance of the lakes by 10% over the average of the previous ten years (p. 4-6)." Significant internal load control is necessary to improve nutrient levels and water clarity in Meadow Lake. The Meadow Lake Drawdown Project was identified as a potential project in the Management Plan (p. 4-21) but was not specifically programmed pending additional study, monitoring, and stakeholder work. That work has now been completed and the project has been added to the current CIP via a 2019 minor plan amendment.

Prioritization (Relationship to Plan): Question 1, continued: (B) *In addition to the plan citation, provide a brief narrative description that explains whether this application fully or partially accomplishes the referenced activity.*

This application will fully accomplish the proposed lake nutrient reduction plan. This project will take place over 3 years, and will focus on improving the biology of the shallow lake by controlling curly-leaf pondweed and fathead minnow populations and reducing internal P loading via alum treatments. Future maintenance actions may be necessary to keep invasive vegetation and fish in check.

Prioritization (Relationship to Plan): Question 1, continued: (C) *Provide weblinks to all referenced plans.*
Shingle Creek Watershed Management Plan: <http://www.shinglecreek.org/management-plan.html>
Meadow Lake TMDL and Implementation Plan: <https://www.pca.state.mn.us/water/tmdl/meadow-lake-excess-nutrients-tmdl-project>
Meadow Lake TMDL 5 Year Review: <http://www.shinglecreek.org/tmdls.html>

Meadow Lake Management Plan
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Prioritization (Relationship to Plan): Question 2. (3 points): (A) Describe how the resource of concern aligns with at least one of the statewide priorities referenced in the Nonpoint Priority Funding Plan (also referenced in the “Projects and Practices” section of the RFP). (B) Describe the public benefits resulting from this proposal from both a local and state perspective.

- (a) The project aligns with the statewide priority “Restore and protect water resources for public use and public health, including drinking water.” This management plan for Meadow Lake is focused on restoring a balance to the lake ecosystem. Controlling curly-leaf pondweed, fathead minnows, and reducing internal P loading to the lake will improve water quality and support a healthy, diverse plant and animal community.
- (b) In its current condition the public cannot recreate in the lake and its aesthetics are unpleasing. It is not capable of sustaining a balanced ecology. The Meadow Lake Management Plan would restore the lake’s Aquatic Recreation beneficial use.

Targeting: Question 3. (15 points): Describe the methods used to identify, inventory, and target the root cause (most critical pollution source(s) or threat(s)). Describe any related additional targeting efforts that will be completed prior to installing the projects or practices identified in this proposal.

Regular water quality monitoring has been conducted on Meadow Lake since the original TMDL study. Data has been collected by volunteers through the Met Council’s CAMP and the MPCA’s CLMP programs, and the Commission’s Intensive Lake Monitoring Program. Meadow Lake was last intensively monitored in 2016 in preparation for completing a TMDL Five Year Review of progress. In addition to water quality monitoring, the Commission also completed fish and aquatic vegetation surveys, took sediment cores, and took inventory of BMPs implemented in the lake’s watershed. These data were used to update HydroCAD, P8, and lake response modeling, and review and revise implementation priorities.

The 2016 fish survey and previous surveys completed by academic researchers documented the fathead minnow population and its potential role in degrading water quality. The fish and curly-leaf pondweed surveys showed low species diversity and high abundance of nuisance species (i.e., fathead minnows and curly-leaf pondweed). Data collection efforts are occurring in 2020 prior to the Fall drawdown to document the drawdown’s impact on the lake. Regular water quality monitoring (through the CAMP program) is underway, and the Commission plans to take zooplankton and phytoplankton samples in late August. An early spring aquatic vegetation survey has been completed and a fall survey is planned. Sediment cores will be taken in September to document pre-drawdown organic matter content, bulk density, and P fractions. A wildlife survey will also be completed.

Targeting: Question 4. (10 points): How does this proposal fit with complementary work that you and your partners are implementing to achieve the goal(s) for the priority water resource(s) of concern? Describe the comprehensive management approach to this water resource(s) with examples such as: other financial assistance or incentive programs, easements, regulatory enforcement, or community engagement activities that are directly or indirectly related to this proposal.

[The Meadow Lake Watershed Association](#) (MLWA) in partnership with the City of New Hope and the Commission recently updated its [Lake Management Plan](#). This Plan includes both short- and long-term

Meadow Lake Management Plan
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goals and strategies that have been in active implementation since its inception in 2009. The Commission awarded MLWA three education grants to support community education including the publication of a series of newsletters and the [Meadow Lake Watershed Guide](#). MLWA designed and purchased “Welcome to the Meadow Lake Watershed” street signs, worked with the City to place them throughout the watershed, and routinely displays yard signs informing residents that “Every curb is a shoreline” and “Our street connects to Meadow Lake.” The Association received a grant from the MN DNR to sponsor a series of three educational workshops on shoreline restoration, and several lakeshore property owners restored their shorelines with native plant buffers. The Association partnered with Meadow Lake Elementary School to plant a 10,000 square foot rain garden, and the Association and City have collaborated with volunteers to adopt and restore over 200 feet of shoreline in Meadow Lake Park. The City also maintains grit chambers and provides enhanced street sweeping in the watershed throughout the growing season.

Concurrent with this project, the City, Association, and Commission will develop a written maintenance plan that will include schedules for street sweeping, grit chamber and outlet cleaning; best practices for road salt usage and golf course turf management to limit impacts to the lake; and plans for ongoing management of stormwater in the watershed.

Measurable Outcomes and Project Impact: Question 5. (10 points): (A) *What is the primary pollutant(s) this application specifically addresses?* (B) *Has a pollutant reduction goal been set (via TMDL or other study) in relation to the pollutant(s) or the water resource that is the subject of this application? If so, please state that goal (as both an annual pollution reduction AND overall percentage reduction, not as an in-stream or in-lake concentration number).* (C) *If no pollutant reduction goal has been set, describe the water quality trends or risks associated with the water resource or other management goals that have been established.* (D) *For protection projects, indicate measurable outputs such as acres of protected land, number of potential contaminant sources removed or managed, etc.*

A) The primary pollutant addressed is phosphorus.

B) The Meadow Lake Nutrient TMDL requires an 83%, or 96 lb/yr reduction from the watershed and 85% (62pound) reduction of the internal load. Lake response modeling completed for the TMDL 5 Year Review used updated lake datasets and suggests a 71%(62pound) reduction from the watershed and a 93%, (110-pound) reduction of the internal load. The TMDL 5-Year Review estimates that about 42 pounds of TP are removed annually by BMPs installed since the TMDL and by annual enhanced street sweeping.

D) The goal is to achieve the NCHF shallow lake standards for clarity (>1 meter) and chlorophyll-a (≤ 20 $\mu\text{g/L}$).

Measurable Outcomes and Project Impact: Question 6. (10 points): (A) *What portion of the water quality goal will be achieved through this application? Where applicable, identify the annual reduction in pollutant(s) that will be achieved or avoided for the water resource if this project is completed.* (B) *Describe the effects this application will have on the root cause of the issue it will address (most critical pollution source(s) or threat(s)).*

A) This project will reduce internal P loading to Meadow Lake by 106-111 lb/yr, meeting the TMDL 5-year Reviews suggestion of a 110-lb reduction. Using sediment core P release rates from 2016 and an assumed 90% reduction in release rates following alum treatment, we predict that P loading to the lake

Meadow Lake Management Plan
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will be reduced by 86 lbs/yr following the two planned alum applications. Lake response modeling completed for the TMDL 5-Year Review estimates a residual annual load of 20-25 pounds TP that cannot be accounted for from watershed load or from sediment release based on the measured release rates. This loading likely comes from sediment resuspension by minnow foraging and wind. This residual load of 20-25 lbs would be reduced as a result of the drawdown, and lake vegetation and fish management. See the Meadow Lake Feasibility Study for more detailed information on load reduction calculations.

B) The main issue addressed in this application is excess P loading to Meadow Lake. P loading to the lake occurs in two ways: through runoff from the watershed and internally from lake sediments. Watershed P loading is being addressed by structural BMPs and an improved street sweeping program, but internal P loading has not been addressed. The proposed drawdown and alum treatments planned for Meadow Lake will reduce internal P loading to the lake to at or above the TMDL's suggested rate (110 lb/yr). The combination of reduced watershed loading and reduced internal loading will improve Meadow Lake water quality.

Measurable Outcomes and Project Impact: Question 7. (5 points): *If the project will have secondary benefits, specifically describe, (quantify if possible), those benefits. Examples: hydrologic benefits, climate resiliency, enhancement of aquatic and terrestrial wildlife species, groundwater protection, enhancement of pollinator populations, or protection of rare and/or native species.*

The City and Association will be conducting education and outreach activities throughout the project and will work with the local newspaper, Sun Post, and the cable access provider CCX Media to publicize the project on its daily newscast. Ongoing publicity about the project will create the opportunity to increase community awareness about Meadow Lake and other waterbodies. The City and Association will leverage this publicity as a vehicle to educate the community on how individual practices can make a difference in protecting and improving water quality and ecological integrity.

Cost Effectiveness and Feasibility: Question 8. (15 points): *(A) Describe why the proposed project(s) in this application are considered to be the most cost effective and feasible means to attain water quality improvement or protection benefits to achieve or maintain water quality goals. Has any analysis been conducted to help substantiate this determination? Discuss why alternative practices were not selected. Factors to consider include, but are not limited to: BMP effectiveness, timing, site feasibility, practicality, and public acceptance. (B) If your application is proposing to use incentives above and beyond payments for practice costs, please describe rates, duration of payments and the rationale for the incentives' cost effectiveness. Note: For in-lake projects such as alum treatments or carp management, please refer to the feasibility study or series of studies that accompanies the grant application to assess alternatives and relative cost effectiveness. Please attach feasibility study to your application in eLINK.*

A) Meadow Lake has a small (88 acres), fully developed watershed. A City improvement project implemented several years ago installed grit chambers and a large boulevard rain garden to provide treatment of runoff prior to discharge into the lake. The City also undertakes enhanced street sweeping in the watershed, reducing sediment and nutrient loading to the lake.

These actions have achieved about 2/3 the required watershed load reduction. Several homeowners have planted native buffers on their shoreline, and the MLWA sponsors shoreline buffer plots at

Meadow Lake Management Plan
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Meadow Lake Park. There are few opportunities left in the small watershed to make additional load reductions. Shallow lakes are different than deep lakes, in that achieving a biotic balance is as crucial to achieving a clear water state as is managing nutrients. Even if the watershed load was reduced to zero, the lake would not significantly improve because it does not currently have a balanced biology. The fish community is almost exclusively fathead minnows, and the aquatic vegetation community is dominated by curly-leaf pondweed. Fathead minnows are opportunistic feeders, rooting in the bottom sediments as well as consuming zooplankton that would ordinarily keep algae growth in check. The planned drawdown will eliminate as many of the minnows as possible, and barriers installed on outfalls and the lake outlet should prevent colonization from nearby ponds and from Bass Creek. The drawdown will also help control the curly-leaf pondweed, allowing native vegetation an opportunity to establish. The City of New Hope had previously undertaken a partial drawdown to excavate sediment accumulated at outfalls, and the following year water clarity was good and native vegetation did grow, confirming that the seedbank is still present and viable.

B) A feasibility study is attached.

Project Readiness: Question 9. (8 points): *What steps have been taken or are expected to ensure that project implementation can begin soon after the grant award? Describe general environmental review and permitting needs required by the project (list if needed). Also, describe any discussions with landowners, status of agreements/contracts, contingency plans, and other elements essential to project implementation.*

The Commission is in the process of applying for the necessary permits for the lake drawdown in Fall 2020. The Commission is currently completing background studies including water quality monitoring, aquatic vegetation and fish surveys, and sediment coring to establish lake baseline conditions prior to the drawdown. The City of New Hope and Meadow Lake Watershed Association have been partners in developing the proposed Meadow Lake Management Plan and have held public meetings to discuss the proposed improvements, including an Open House to which all residents in the watershed were invited. A DNR Work in Public Waters permit will be required to conduct temporary drawdowns, and the Commission has been in contact with the Area Hydrologist to be sure all permit procedures are followed. MLWA has updated its membership several times, and will assist in obtaining the required riparian property owner approvals.

Project Readiness: Question 10. (2 points): *What activities, if any proposed, will accompany your project(s) that will communicate the need, benefits, and long-term impacts to your local community? This should go above and beyond the standard newsletters, signs and press releases.*

The City of New Hope and the MLWA are partners in this project. This project will be publicized on the Commission and City website, and we will also work with CCX Media to provide ongoing , local cable-access TV coverage over the life of the project.

**Meadow Lake Management Plan
DRAFT 8/12/2020**

Stream Restoration Projects Only (all other projects, please indicate "Not applicable"): Stream restorations benefit from the expertise of diverse professional experience in fields like: geomorphology, hydrology, plant and animal ecology, construction site management, and engineering. What technical skills will be applied to this project and who is providing them?

Stream Restoration Projects Only (all other projects, please indicate "Not applicable"): Describe how your organization will provide financial assurance that operations and maintenance funds are available if needed.

The Constitutional Amendment requires that Amendment funding must not substitute traditional state funding. Briefly describe how this project will provide water quality benefits to the State of Minnesota without substituting existing funding.

The grant funds will allow the Commission to undertake a suite of activities that together will restore Meadow Lake to a clear-water state.

Task #	Task	Tot Hrs	Staff Costs	Const. Costs	Lab Costs	Expense	TOTAL Cost
1	Project Coordination	32	\$6,448				\$6,448
2	Construction						
	SAV Treatment	24	\$5,088	\$6,000		\$500	\$11,588
	Alum Treatment	36	\$7,632	\$70,000		\$500	\$78,132
	Fish Treatment	24	\$2,780	\$5,000		\$500	\$8,280
3	Monitoring						
	Wildlife management	40	\$4,200				\$4,200
	Water Quality	144	\$15,120		\$4,122	\$3,060	\$22,302
	Fish Surveys and Permits	90	\$6,300			\$2,790	\$9,090
	SAV Surveys and Permits	144	\$7,560			\$2,190	\$9,750
	Sediment Coring	32	\$3,750		\$6,843	\$530	\$11,123
4	Report	36	\$4,056				\$4,056
5	Meetings	48	\$8,648				\$8,648
6	Grant Reporting	6	\$844				\$844
						Subtotal	\$174,461
						Contingency 10%	\$17,450
						TOTAL	\$191,911
						SAY	\$192,000

Technical Memo



Responsive partner.
Exceptional outcomes.

To: Shingle Creek WMC
From: Ed Matthiesen, P.E. Diane Spector
 Jeff Strom Katie Kemmitt
Date: August 12, 2020
Subject: Meadow Lake Management Plan Feasibility and Cost Estimate

INTRODUCTION AND BACKGROUND

Meadow Lake is a shallow eutrophic lake located in New Hope, MN. Meadow Lake discharges through storm sewer to Bass Creek, a tributary of Shingle Creek. In 2002 the Minnesota Pollution Control Agency (MPCA) listed the lake as impaired for excess nutrients. In 2010, Wenck completed a TMDL and Implementation Plan to assess nutrient loading concerns and provide strategies to reduce excess nutrient loading ([Wenck 2010a](#), [2010b](#)). Table 1 below shows the physical characteristics of the lake and its lakeshed. Information about water quality, fish, and aquatic vegetation may be found in Appendix A.

Table 1. Physical characteristics of Meadow Lake.

Parameter	Meadow Lake
Surface Area (ac)	12
Average (Maximum) Depth (ft)	1.9 (4)
Volume (ac-ft)	23
Residence Time (years)	0.1
Littoral Area (ac)	12 (100%)
Watershed Size (ac)	88

In 2019 the Commission completed a TMDL Five Year Review, summarizing progress to date and updating the nutrient budgets and targets using more recent and complete monitoring data ([Wenck 2019](#)). Figure 1 depicts the lakeshed, subwatersheds, and BMPs used for hydrologic and hydraulic, water quality, and lake response modeling.

The updated modeling shows Meadow Lake requires an 82% reduction in TP, both from the watershed and from internal load (Table 2). An estimated 42 of the of the required 62 pound watershed load reduction per year has been achieved through an enhanced street sweeping program and various other BMPs implemented by the City of New Hope (Table 3).

Analysis of sediment cores suggests internal loading from sediment is high, exceeding 75 percent of all lakes in our database. The 2016 vegetation surveys for Meadow Lake showed low species diversity (four species observed) and a high abundance of curly-leaf pondweed (CLP). The Spring 2020 vegetation survey also showed low species diversity (six species observed) and a high abundance of Canadian waterweed, duckweed, and sago pondweed.

Only two fish species were observed during a 2017 assessment and the population was dominated by fathead minnow. In high densities, fathead minnow can have significant water quality impacts by feeding on zooplankton, through secretion, and sediment resuspension. It is highly likely that efforts to eradicate the fish would have positive impacts on water quality, particularly water clarity, as well as the vegetation community. Water quality is variable but typically exceeds State water quality standards for most of the growing season.

Table 2. Updated existing and allowable total phosphorus (TP) loads for Meadow Lake.

Source		Existing TP Load [lbs/yr]	Allowable TP Load [lbs/yr]	Estimated Load Reduction	
				lbs/yr	Percent
Wasteload Load	Watershed	87.2	25.7	61.5	71%
	Atmospheric	2.8	2.8	0.0	0%
	Internal	117.7	7.7	110.0	93%
TOTAL LOAD		207.7	36.2	171.5	83%

Table 3. Estimated watershed total phosphorus (TP) load reductions achieved to date.

Type of BMP	Annual TP Load Reduction (lbs/yr)
Structural BMPs	24
Street Sweeping	18
Other	-
TOTAL	42

The TMDL 5 Year Review concluded with updated Implementation Plan activities for the coming 5-10 years:

- Reduce watershed loading to Meadow Lake
 - Continue promoting and working with property owners throughout watershed to identify and implement curb-cut raingardens near/above existing catch basins
 - Continue promoting Adopt-a-Drain program
 - Continue working with lakeshore owners on lakeshore restorations and native plantings
 - Continue enhanced street sweeping program throughout Meadow Lake subwatershed and document effectiveness (e.g. number of sweepings, amount of sediment removed)
 - Collect water quality samples, bathymetric surveys, and sediment cores, and assess fish populations on New Hope Golf Course Ponds that are connected to the lake to determine if these ponds are a potential source of TP and fish to Meadow Lake
- Reduce internal loading to Meadow Lake
 - Conduct water level drawdown(s) during late fall/winter to expose and consolidate sediment, promote winterkill of existing fish population, reduce CLP seedbank, and promote native vegetation growth
 - Conduct sediment treatment (e.g. aluminum sulfate (alum), Phoslock ®, iron filings) to reduce phosphorus (P) release from the sediment
 - Develop long-term plan to treat, manage, and monitor CLP and fish populations following water level drawdown(s) and sediment treatment

Efforts should continue to identify and implement additional watershed load reductions, and to assure that those achieved to date maintain effectiveness. However, since significant progress has been made in reducing watershed load, it is appropriate at this time to start to manage the internal load. This technical memorandum assesses the feasibility of monitoring Meadow Lake's water quality, fish, vegetation, and sediment response to a Fall 2020 drawdown and two aluminum sulfate (alum) treatments to reduce internal P loading. The study includes project costs and estimated longevity.

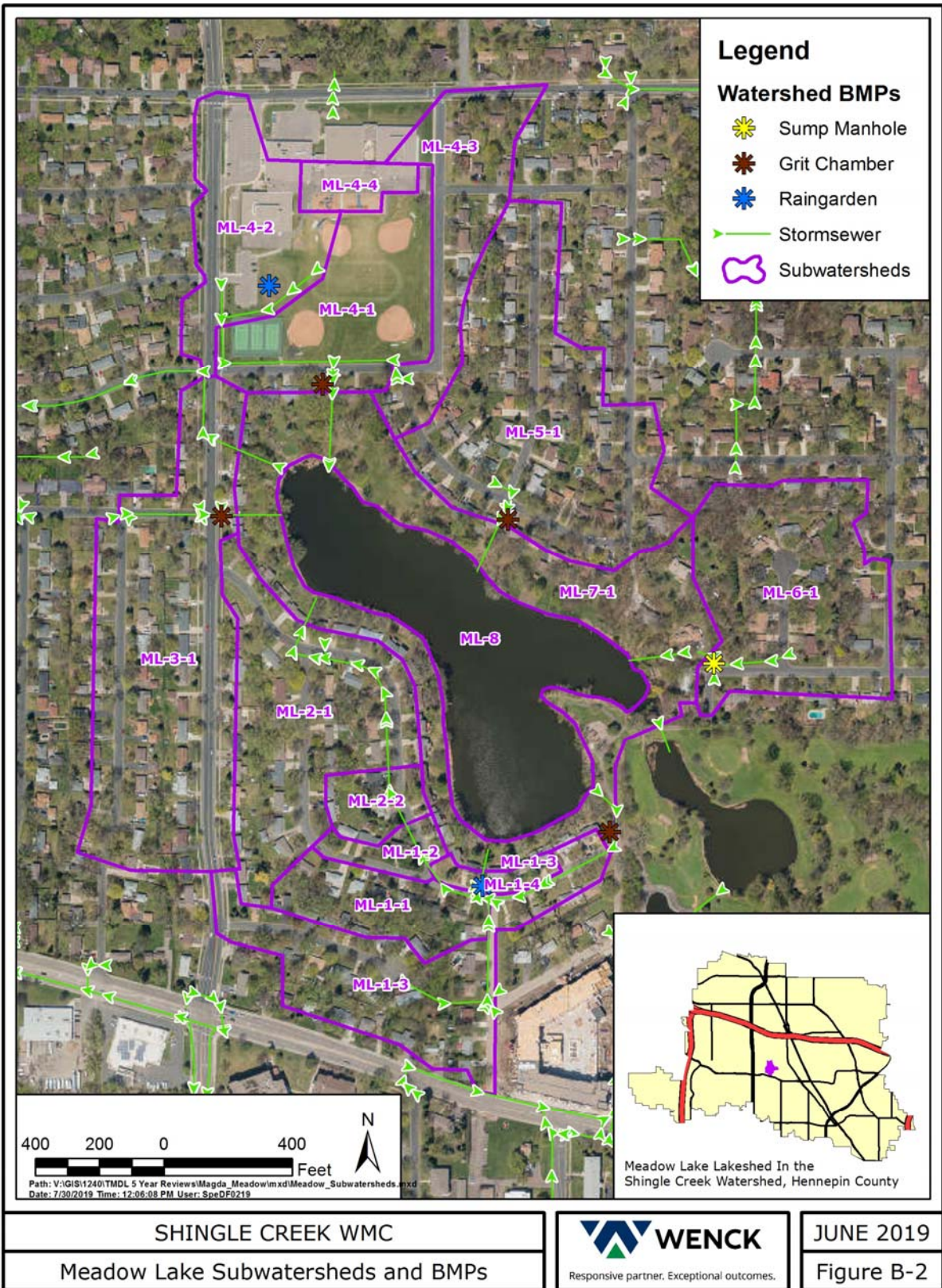


Figure 1. Subwatersheds and BMPs in the Meadow Lake lakeshed.

DATA COLLECTION

Water Quality. Periodic water quality monitoring has been conducted on Meadow Lake since the original TMDL study. Much of the data was collected through the Metropolitan Council Environmental Services' Citizen Assisted Monitoring Program (CAMP) and the Minnesota Pollution Control Agency's Citizen Lake Monitoring Program. The Commission monitored water quality on Meadow Lake in 2016 through its Intensive Lake Monitoring Program. Results of these monitoring efforts are presented in the Commission's Annual Water Quality Reports ([link to reports](#)). Average annual TP chlorophyll-a (chl-a), and Secchi depth over the past 20 years is also summarized in Appendix A of this report.

Aquatic Vegetation Surveys. Spring and summer vegetation surveys were performed by the Commission on Meadow Lake in 2016 ([Wenck 2017](#)) as part of the routine Intensive Lake Monitoring Program. The surveys showed low species diversity (four species observed) and an FQI score of 5.5 (well below the 17.8 shallow lake threshold). Plant abundance was high (100% coverage) during the June 2016 survey and low (19% coverage) during the August 2016 survey. The most common species observed during the June and August surveys were CLP (57%) and Elodea (19%), respectively. Eurasian water milfoil was not observed during either survey. Copper sulfate was applied to the lake in the 1990s to suppress algae and vegetation growth with limited success. There was some native vegetation response to a partial drawdown in 2006, which was undertaken to facilitate dredging sediment deltas at the storm sewer outfalls, but the effect was temporary. A spring vegetation survey was completed in 2020 in an effort to understand conditions preceding a Fall 2020 drawdown. The survey showed low species diversity (six species observed) and an FQI score of 11.4. Plant abundance was high (93% coverage) and the most common species were sago pondweed (75%), Canadian waterweed (71%). Curly-leaf pondweed was present but was less common (11%).

Fish Surveys. A fisheries assessment was completed on Meadow Lake in early August 2017. Only two species were observed during the 2017 assessment and the population was dominated by fathead minnow. Previous surveys conducted on Meadow Lake by others for academic research showed that the minnow population varies significantly annually, with sampling some years finding no minnows and others thousands of individuals. Fathead minnow are very tolerant of winter-kill conditions; however, Meadow Lake is likely not deep enough to support the species year-round. It is likely that fish over winter in the adjacent golf course ponds and/or recolonize the lake from Bass Creek during high water levels. Minnows could also be introduced by human sources, such as dumping a bait bucket into the lake. In high densities, fathead minnow can have significant water quality impacts through feeding on zooplankton, secretion, and sediment resuspension. Thus, it is highly likely that fathead minnows contribute to poor water quality conditions in Meadow Lake.

Sediment Chemistry. Sediment data collected in 2009 were used to characterize potential for sediment P release. Four sediment cores were collected from a single location and were analyzed for sediment release rate under anoxic conditions. Additionally, the uppermost 10 cm of one of the sediment cores was homogenized for assessment to provide sediment chemistry data.

Meadow Lake sediment exhibited an anoxic P release rate of 12.4 mg/m²/d. This rate is high and exceeds the 75th percentile of lakes in Wenck's database of over 100 lakes throughout Minnesota. Iron-bound and loosely-bound P (redox-P) are the fractions associated with sediment P release during periods of low dissolved oxygen (<2 mg/L). Sediments with more iron-bound or redox-P typically have higher P release rates.

Sediments that do have high internal release rates have a large peak of iron-bound P near the sediment-water interface. We find that redox-P concentrations greater than 0.1 mg/g are associated with lake sediments that have high P release rates. Sediments collected from Meadow Lake had redox-P concentrations of 0.190 mg/g in the uppermost 10 cm. These are moderately high and are consistent with the high release rates observed in Meadow Lake sediments.

MANAGEMENT OPTIONS

Fish and Aquatic Vegetation. There are a number of methods for controlling nuisance or invasive fish populations and invasive submersed aquatic vegetation (SAV) such as CLP. The chemical rotenone is often used to kill undesirable fish. It is non-selective, meaning it will kill all fish, and is often used to “reset” a waterbody prior to fish restocking. Several herbicides are effective at reducing CLP, although since the reproductive turions can remain dormant on the lake bed for years it typically takes several years of repeated treatment to bring the plant coverage down to non-nuisance levels.

As an alternative to ongoing chemical treatment with pesticides and herbicides, temporary winter lake drawdowns can be effective at achieving multiple objectives. Pumping as much water out of the lake as possible allows the sediment to freeze and consolidate. The CLP turions in the sediment are also killed by the freeze. Sediment consolidation encourages native plant seed germination, reduces muck, and reduces sediment resuspension. Temporary drawdowns in summer months can also stimulate germination of the native seedbank. Drawdowns mimic the natural hydrology of undisturbed wetlands and shallow lakes, where lake levels are dependent on the amount of precipitation received that year rather than by an outlet structure. As noted above, a partial drawdown was completed on Meadow Lake to facilitate dredging at storm sewer outfalls, and an immediate response was observed, although short-lived. This suggests that there is a high likelihood of success, especially if the four-foot deep lake can be pumped completely dry.

Sediment Phosphorus Release. The Meadow Lake sediment core anoxic rate of P release of $12.4 \text{ mg}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$ is high, although the extent and duration of anoxia in the lake, like most shallow, polymictic lakes, is difficult to predict. Nurnberg (2004) developed a method of estimating a Shallow Lake Anoxic Factor using lake morphometry, and application of that formula to Meadow Lake suggests that on average the sediments may be releasing about 96 pounds of P annually into the water column. However, this does not adequately account for the entirety of lake internal loading. Updated lake response modeling estimates a 20-25 pound annual residual load that is not accounted for by hydrologic and hydraulic (H & H) modeling or sediment load estimation. The source of this residual load could be release from aquatic vegetation as it senesces and is broken down, excretions from fish and other wildlife, excessive resuspension of sediments, or model underestimation.

Properly dosed chemical treatments such as alum routinely achieve 90-95% reduction of release. Assuming a conservative 90% reduction, a chemical treatment has the potential to reduce annual internal loading by an estimated 86 pounds per year. While the TMDL requires a 62 pound reduction, updated H & H and lake response modeling using the sediment core data estimates the required reduction to be closer to 110 pounds per year from sediment and residual sources.

Chemical treatments such as alum have progressed significantly in the last decade. Scientists and practitioners have found that alum treatments are more effective and successful if they are completed in multiple doses over two or more years. Initial, interim,

and final sediment cores are taken and release rates measured to confirm and adjust dosing if necessary and to determine when the desired release rate and redox-P concentrations have been achieved.

MEADOW LAKE MANAGEMENT PLAN

The Meadow Lake Management Plan consists of two phases. Phase I is the initial 2020 monitoring work necessary to scope and permit a Fall 2020 lake drawdown; the installation, operation, and removal of the pumps; and design of one or more fish barriers. Phase I is currently underway. Phase II will consist of monitoring the lake's response to the drawdown, and providing a framework for deciding on further management actions, including fish, SAV, and alum treatments.

The Meadow Lake Management Plan Phase I is focused on reestablishing a balanced lake biology through a Fall/Winter lake drawdown. The predicted effects of this drawdown are eradicating the fathead minnow population and limiting their recolonization through the installation of fish barriers, reducing curly-leaf pondweed to non-nuisance levels, and restoring a healthy native aquatic vegetation community. Phase II includes monitoring the lake's response to the drawdown, adaptively managing fish and SAV populations if the lake drawdown doesn't have the desired response, and reducing phosphorus loading from the sediments via two alum applications. Phase II will take place over a 3-year period.

PHASE I: Phase I of the Meadow Lake Management Plan is the initial 2020 monitoring work necessary to scope and permit the drawdown; the installation, operation, and removal of the pumps; and design of one or more fish barriers. The drawdown is expected to occur in October to accommodate migration of wildlife such as turtles and amphibians to designated refuge location(s) such as the adjacent golf course ponds, with pumps estimated to be in place 2-3 months until freezeover. During the drawdown, the pipe connecting the golf course pond and Meadow Lake will receive maintenance.

When conducting the drawdown, the pump must be appropriately sized so that it can remove the runoff from a storm within 24 hours of its occurrence. Meadow Lake is an 11.8 acre lake in a 96.6 acre drainage area. According to the New Hope climate station, 2016 had the most precipitation in the August-October period of any year since 1990. The greatest amount of precipitation of any of the storms occurring in this period of 2016 was 2.70 inches. A precipitation event of this size would result in 6.2 acre-feet of runoff to Meadow Lake, which, in order to be drained within 24 hours, requires a pump rate of 1,400 GPM. This rate would also allow the full lake volume to be drained in 155 hours. Once the water has been removed from the lake, it will be transported to a storm sewer catch basin downstream of the lake. The water surface elevation of the lake is 893.5' and the elevation of the street where the basin is located is 912'. The lake also reaches a maximum depth of roughly 4 ft. This will require less than 500 ft of horizontal displacement and 20 ft of static discharge head. The pump will likely be gas-powered, and because the site is located in a residential area, noise-control measures will be employed.

Following the drawdown, the lake is expected to fill with water with spring snowmelt and rain in 2021. Given a watershed of 88 acres and lake volume of 23.3 acre-feet, a rainfall event of at least 0.27 ft (3.2 inches) would be enough to fill Meadow Lake back to its typical volume.

PHASE II: Phase II of the Meadow Lake management Plan will occur over 3 years and consists of adaptively managing the lake following the drawdown to ensure a healthy fish

and vegetation community is established, applying alum treatments to the lake in two doses, and monitoring the lake's ecological response to management activities through water quality and sediment sampling, and fish and vegetation surveys. Major activities to occur each year in Phase II are described in detail below and in Table 4.

Year 1: Monitor the lake's ecological response to the Fall 2020/Winter 2021 drawdown.

Year 1 would start in 2021 following the initial lake drawdown in Fall 2020/Winter 2021. The phase involves monthly water quality monitoring over the growing season (May–October). Parameters that will be measured include: TP, ortho-phosphorus, chlorophyll-a, total suspended solids (TSS), and dissolved oxygen and temperature profiles. Phytoplankton and zooplankton samples would be collected three times during the monitoring season. Two SAV surveys (early spring and fall) and a fisheries survey will be performed to assess the drawdown's impact on lake vegetation and fish.

In preparation for an alum treatment and to understand the drawdown's effect on lake chemistry, sediment cores be collected in 2021. Cores will be analyzed for P fractions, organic matter content, and bulk density. Cores will help us calculate alum dosing for the 2022 treatment and assess the drawdown's impact on sediment consolidation and P content.

Year 1 may also include fish and aquatic vegetation treatments depending on the lake response to the drawdown. These treatments involve chemical applications of piscicide or herbicide to help control the fathead minnow and CLP populations and will only be performed if the populations were not controlled as a result of the lake drawdown.

Year 2: Spring 2022 alum treatment and continued monitoring of the lake's response to management activities

Year 2 would start in 2022. The phase involves the first of two alum treatments, lake monitoring, and follow-up sediment coring in preparation for the second alum dose.

Two factors are considered when calculating an alum dose: redox-P concentration and the depth of anoxia. The depth of anoxia is defined as the sediment area that is exposed to dissolved oxygen lower than 2 mg/L, which represents the area that will be treated with alum. The second factor is the depth of sediment that will be treated with alum. Previously collected DO profiles from Meadow Lake indicates that the average anoxic depth is approximately 3.4 feet. Since the maximum depth of Meadow Lake is about four feet, as a conservative estimate the one foot contour was selected as the alum treatment area, or about 9 acres of the lake's 11 acres. Lab results determined that the 0-10 cm sediment sample contained 0.140 mg/g redox P, which provides us the total amount of redox-P in the uppermost 5 cm of sediment, which is typically the sediment depth used to determine alum dosing rates. Using these results, it is estimated that Meadow Lake will require an alum application of approximately 11,180 gallons to convert redox-P in the uppermost 5 cm to aluminum bound P.

Similar to monitoring in Year 1, monitoring in Year 2 will involve monthly water quality sampling of the same parameters (including phyto- and zooplankton sampling), two SAV surveys (early spring and fall), and a general fisheries survey. The majority of monitoring will be performed after the Spring alum treatment. Lake chemistry following an alum treatments is expected to show reduced P and chl-a concentrations.

Follow-up sediment coring will occur later in the 2021 season to assess the impact of the first alum dose on lake sediment chemistry. The cores will be analyzed for P fractions, bulk density, organic matter content. One core will have P release rates measured. The cores will be used to make adjustments to the second of the two alum doses scheduled for Spring 2023.

Year 3: Spring 2023 alum treatment and final monitoring of the lake's response to management activities

Dosing for the second alum treatment in Meadow Lake will be determined using data from the sediment cores and DO profiles collected in Year 2. The second alum treatment will occur in Year 3 and be followed by a final season of water quality, SAV, and fish monitoring. Monitoring activities will follow the same frequency as the previous years: monthly water quality sampling, two SAV surveys (early Spring and Fall), and one fisheries survey. At this point, the lake will have gone through the drawdown process in 2020, potentially received fish and SAV control treatments (i.e., piscicide and herbicide) in 2021, and received two alum treatments in 2022 and 2023. After these management actions, we predict reduced P concentrations in the lake, reduced CLP populations and a diverse aquatic vegetation community, and a significantly reduced or eradicated fathead minnow population.

Table 4. Summary of major management/monitoring activities to occur in Phase II of the Meadow Lake Management Plan.

Timeline	Major activities
Phase 2, Year 1 (2021)	<ul style="list-style-type: none"> - Monthly water quality monitoring measuring: TP, ortho-P, chl-a, TSS, zoo/phytoplankton, DO and temperature profiles - Sediment coring - 2 SAV surveys - 1 fisheries survey <p>Fish and SAV treatment if necessary</p>
Phase 2, Year 2 (2022)	<ul style="list-style-type: none"> - 1st alum treatment - Monthly water quality monitoring measuring: TP, ortho-P, chl-a, TSS, zoo/phytoplankton, DO and temperature profiles - Sediment coring - 2 SAV surveys - 1 fisheries survey
Phase 2, Year 3 (2023)	<ul style="list-style-type: none"> - 2nd alum treatment - Monthly water quality monitoring measuring: TP, ortho-P, chl-a, TSS, zoo/phytoplankton, DO and temperature profiles - 2 SAV surveys - 1 fisheries survey

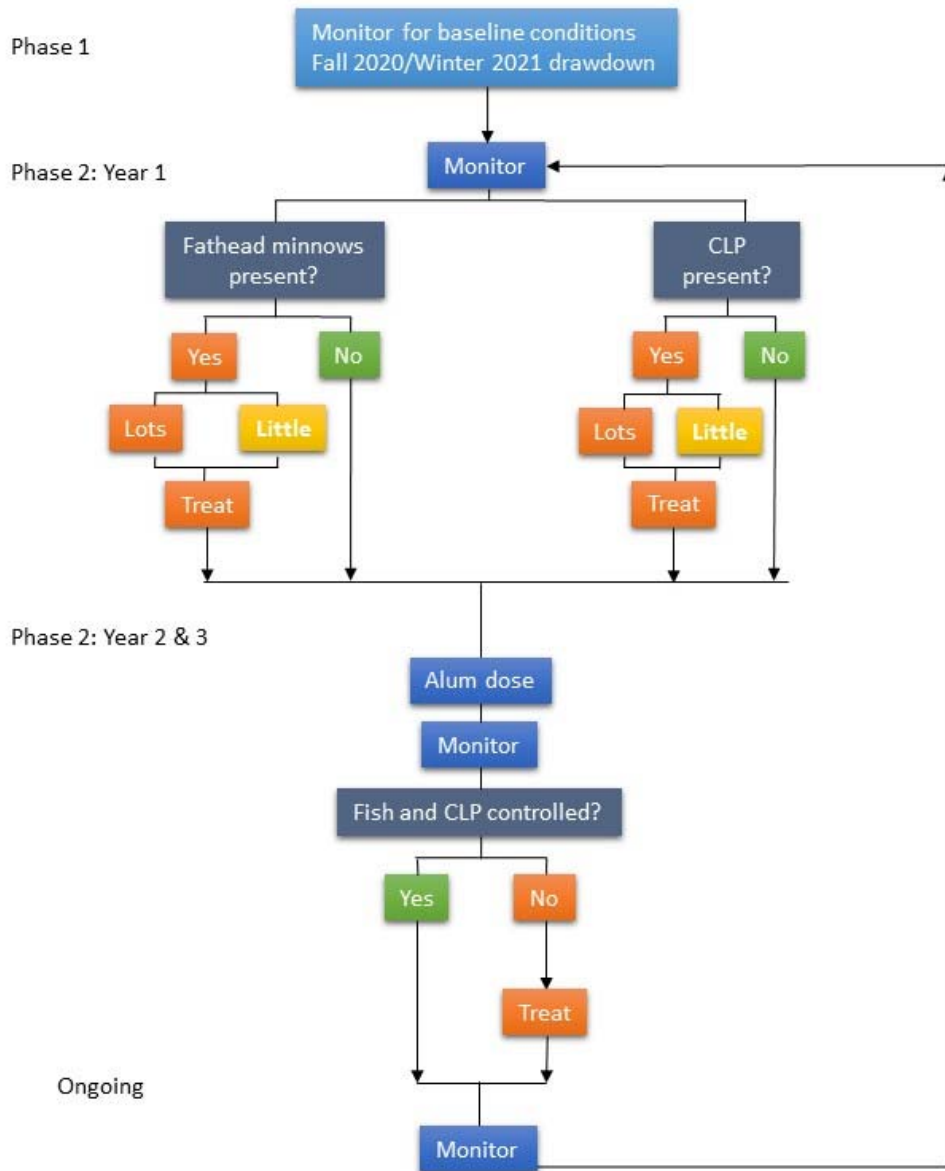


Figure 2. Meadow Lake decision tree.

ESTIMATED LOAD REDUCTION AND LONGEVITY

Phase I: The first phase of the project is a lake drawdown taking place in Fall 2020. This phase is focused on restoring the biology of the lake to improve water clarity and reduce planktonic algae abundance. The impact of the lake drawdown on lake biology will be monitored in years 1-3 of the lake management plan. Based on experience gained from other shallow lake drawdowns (see for example Cleary Lake in Carver County, Vlach and Barten 2008), the initial lake response is likely a dramatic decrease in chlorophyll concentration and improvement in water clarity. While it is difficult to say with certainty what the numeric TP benefit would be, lake response modeling using Walker's BATHTUB estimates a residual annual load of 20-25 pounds TP that cannot be accounted for from the watershed or from sediment release based on the measured release rate. This may be the load attributable to resuspension from minnows foraging in the sediments, and from wind resuspension of the unconsolidated sediments. That residual is based on use of Nurnberg's shallow lakes equation for the anoxic factor, which may be conservative and attribute too much load to sediment release and not to residual.

Phase II: The second phase of this project is the monitoring of the lake response following the drawdown and alum applications to reduce internal P load. Wenck's experience with internal load reduction using alum suggests that P release rates will decrease by more than 90%. In many cases P release rates will decrease by 95-99%. Sediment core release rates suggest the current internal load from sediments in Meadow Lake is about 96 pounds per year. A 90% reduction is 86 pounds. With the targeted residual reduction of 20-25 pounds, achieving a total internal load reduction of 110 pounds P/year (Phase 1 and Phase 2 combined) is feasible.

Longevity. To estimate the effectiveness of the alum, we consider the questions, "What is the potential longevity of an alum treatment and what factors will impact longevity of alum treatments?" Our goal is to be able to assess how long it will take to bury the alum layer after the alum application. The important factor is how much P sedimentation is occurring and not just overall sediment. We focused on the P sedimentation from the lake response models. We used the Canfield-Bachmann sedimentation term (Equation 1) to estimate how long it would take to replace inactivated phosphorus in the top 5 cm of sediment. It is important to note that this analysis should not be interpreted as the exact life of an alum treatment. The goal of this analysis is to assess whether a treatment will be quickly buried based on phosphorus settling and if additional watershed load should be reduced prior to an alum treatment.

Equation 1.

$$P_{sed} = C_P \times C_{CB} \times \left(\frac{W_P}{V} \right)^b \times [TP] \times V$$

We ran two scenarios to assess potential longevity of an alum treatment. The first scenario was to assess the longevity based on current watershed loading conditions. The second scenario assessed the potential longevity assuming TMDL watershed load reductions have been met (Table 4). This data suggests that additional watershed reductions would increase the longevity of the alum treatment for both lakes.

Table 5. Expected longevity of alum treatment effectiveness.

Longevity (years)	
Current Watershed Load Rate	TMDL Watershed Load Rate
17	59

COST AND FEASIBILITY

Estimated costs for each phase of the management plan are outlined below in Table 6 (Phase I) and Table 7 (Phase II).

Table 6. Meadow Lake Management Plan Phase I estimated costs.

Task #	Task	Tot Hrs	Staff Costs	Const. Costs	Lab Costs	Expense	TOTAL Cost
1	Monitoring						
	Water quality				\$400		\$400
	Fish/wildlife surveys and Permits	30	\$3,450			\$250	\$3,700
	SAV surveys and permits	20	\$1,980			\$950	\$2,930
	Sediment coring	14	\$1,386		\$3,000	\$200	\$4,586
2	Permitting						
	Permit application	50	\$7,606			\$150	\$7,756
	Public process	6	\$1,200			\$50	\$1,250
	Coordination	14	\$2,096				\$2,096
3	Drawdown & Fish Barrier						
	Drawdown	36	\$4880	\$20,000		\$500	\$25,380
	Pumping operations	76	\$8864			\$300	\$9,164
	Coordination	8	\$1600				\$1,600
	Fish barrier	20	\$2680			\$8000	\$10,680
						Subtotal	\$69,542
						Contingency 10%	\$6,954
						TOTAL	\$76,496
						SAY	\$76,000

Table 7. Meadow Lake Management Plan Phase II estimated costs.

Task #	Task	Tot Hrs	Staff Costs	Const. Costs	Lab Costs	Expense	TOTAL Cost
1	Project Coordination	32	\$6,448				\$6,448
2	Construction						
	SAV Treatment	24	\$5,088	\$6,000		\$500	\$11,588
	Alum Treatment	36	\$7,632	\$70,000		\$500	\$78,132
	Fish Treatment	24	\$2,780	\$5,000		\$500	\$8,280
3	Monitoring						
	Wildlife management	40	\$4,200				\$4,200
	Water Quality	144	\$15,120		\$4,122	\$3,060	\$22,302
	Fish Surveys and Permits	90	\$6,300			\$2,790	\$9,090
	SAV Surveys and Permits	144	\$7,560			\$2,190	\$9,750
	Sediment Coring	32	\$3,750		\$6,843	\$530	\$11,123
4	Report	36	\$4,056				\$4,056
5	Meetings	48	\$8,648				\$8,648
6	Grant Reporting	6	\$844				\$844
						Subtotal	\$174,461
						Contingency 10%	\$17,450
						TOTAL	\$191,911
						SAY	\$192,000

The City of New Hope has reduced watershed load to Meadow Lake through BMPs and by enhanced street sweeping. Updated nutrient budgets and TMDL calculations suggest that Meadow Lake requires an estimated 93% internal load reduction.

The lake drawdown scheduled for Fall 2020 is estimated to reduce TP loading by 20-25 pounds per year, which is the modeled residual load and is approximately one-third the reduction required by the TMDL. More importantly, it is expected that the outcome of the drawdown will be dramatically reduced chl-a concentrations and improved water clarity.

In Phase II of the Meadow Lake Management plan, alum treatments will reduce internal P loading. Alum treatments have been shown to reduce internal load by 90-99% in other Minnesota lakes. Sedimentation scenarios estimate a useful life of approximately 17 years if no additional watershed load reductions are completed, and 59 years if the watershed load reduction targets are met. A 90% reduction in sediment P load is 86 pounds TP.

Assuming the model residual load is reduced 20-25 pounds TP by the drawdown and fish and CLP control, and the alum treatment successfully reduces sediment loading by the estimated 86 pounds, achieving the updated internal load reduction of 110 pounds P/year is feasible.

The cost of undertaking the proposed actions, excluding monitoring and administration is approximately \$47,00 for Phase I and \$98,000 for Phase II, or about \$1,320 per pound TP.

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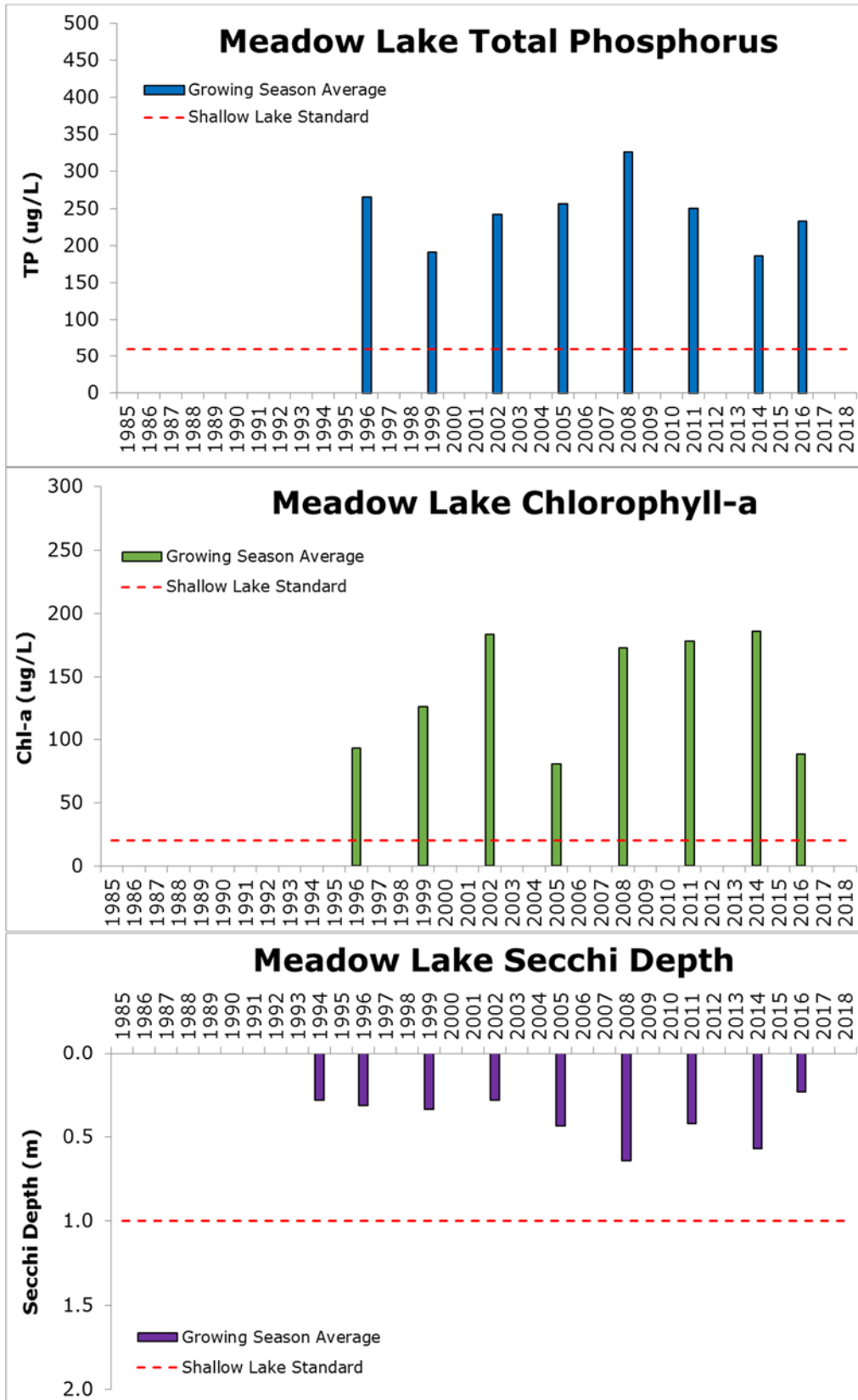


Figure A.1. Historic water quality data for Meadow Lake.



Figure A.2. 2016 curly-leaf pondweed surveys.

Table A.1. Meadow Lake fish survey data.

Sample Year	TP (ug/L)	Chl-a (ug/L)	SD (m)	Fathead Minnow (g)	Black Bullhead (g)	Creek Chub (g)
2009		10		2,400	0	0
2010		23		350	0	0
2011	251	212	0.42	0	11,900	0
2017		131		8,782	0	10



Figure A.3. The 2017 fish survey netted almost 4,100 fathead minnows, 104 painted turtles and 6 snapping turtles. Note: 2009-2011 fish and chl-a data collected by Dr. Kyle Zimmer, University of St. Thomas.

Technical Memo



Responsive partner.
Exceptional outcomes.

To: Shingle Creek/West Mississippi WMO Commissioners
From: Ed Matthiesen, P.E.
Diane Spector
Date: August 12, 2020
Subject: Watershed Based Implementation Funding Submittal

**Recommended
Commission Action**

Authorize submittal as drafted. Consider any potential West Mississippi projects.

Attached is the spreadsheet showing the projects submitted to date on behalf of the Shingle Creek WMC. The Commission had previously authorized submitting the Meadow Lake Management Plan and the Connections II projects. Both projects are also being submitted to the BWSR Clean Water Fund grant program. We took the strategy of submitting as the grant request the Commission match portion of the project cost. Should both the CWF and WBIF grants be approved, the Commission would be able to fully fund those projects from grants.

As can be seen, not all the partners have yet submitted their requests on the shared GoogleDoc. The next Convene meeting is August 24, 2020, and to provide adequate time for review prior to project scoring, applicants have been requested to add their projects to the matrix by Friday, August 14.

No projects from West Mississippi have yet been advanced.

LGU	Target Water Body	Project Description	Resource Need	Resource Priority Level	Project Goals/Benefits	Timeline - Anticipated Completion year	Obstacles to Completion	Partners	Local Matching Funds	Other State Funds	WBIF \$ Request	Est Total Project Cost	% Match (≥ 20)	Life Cycle (yrs)	Life Cycle Cost	Life Cycle Cost/Benefit	WQ Benefit Description	Secondary Benefit Description	Plan Reference	Score 1 (Low) to 5 (High)			Potential Allocation Options													
																				WQ Benefit 70%	Secondary Benefits 30%	Total Weighted Points	Option 1 - 3 Tier	Option 1 - 3 Funding	Option 2 - 3 Tier	Option 2 - 3 Funding	Option 3 - 4 Tier	Option 3 - 4 Funding								
Example	Rupert Lake	300' shoreland stabilization and buffer to reduce sediment and nutrients into the lake	Nearly impaired for nutrients	Regional recreational lake with public access and county park	Reduce sediment load to lake by 2 tons/yr and associated nutrients as well as .25lbs/yr TP from overland flow	2022	Landowner matching funds, DNR & Local permits	Landowner, Lake Improvement District, WMO	\$ 5,000.00	\$ 6,000.00	\$ 25,000.00	\$ 36,000.00	20%	10	\$ 45,000.00	\$ 2,000.00	2.25 lbs-TP/yr reduction, 2% progress toward goal, currently at 36%	2 tons - TSS/yr reduction, .25 acre pollinator habitat buffer, on property owned by Islamic center, and near public beach in Co. Park, lake discharges to Mississippi River 1 mile downstream		4.08	4.33	4.16														
Mississippi WMO												\$ -	#DIV/0!							#DIV/0!	#DIV/0!	#DIV/0!														
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Basset Creek WMO	Bassett Creek	Dredge 3 lagoons constructed in 1930's in creek	Contaminated sediment flushed downstream w/ large events and into Mississippi River 3.4 miles downstream	Priority level 1 waterbody, traveling through MPRB #1 ranked equity park	Improve water quality Reduce contaminated sediments Increase flow capacity and flood storage Improve in-stream and near riparian habitat	2022	State and federal permits	Minneapolis Park and Rec Board City of Golden Valley City of Minneapolis	\$ 3,059,000.00	\$-	\$ 200,000.00	\$ 3,259,000.00	1530%	30	\$ 4,815,000.00	\$ 267.50	Reduce TP by 600 lbs/year Reduce TSS by 78 tons/year	78 tons TSS/yr reduction Improved conveyance and creation of additional storage Improved in-stream habitat for bugs and fish Improved riparian habitat with pollinator native buffer		#DIV/0!	#DIV/0!	#DIV/0!														
Basset Creek WMO	Parkers Lake	Chloride management and reduction projects,	Impaired for chlorides	Priority level 1 deep lake	Significantly reduce chloride loading to lake Work with owners of commercial, industrial, multi-family housing for long term solutions	2023	Cooperation of private landowners	City of Plymouth Private landowners	\$ 250,000.00	\$-	\$ 50,000.00	\$ 300,000.00	500%	Varies	NA	NA	Reduce chloride loading to Parkers Lake on average by 163 - 380 lbs chloride/acre/year	Successful implementation could be demonstration project and replicated in other areas or watersheds. Education of residents may result in them advocating for less salt use in other areas (school, business, church).		#DIV/0!	#DIV/0!	#DIV/0!														
Elm Creek WMO												\$ -	#DIV/0!							#DIV/0!	#DIV/0!	#DIV/0!														
Elm Creek WMO												\$ -	#DIV/0!			\$420,000.00				#DIV/0!	#DIV/0!	#DIV/0!														
Shingle Creek WMO	Meadow Lake	Alum treatment and fish/invasive SAV management	Impaired for nutrients	Public Impaired water, very active lake association	Reduce internal load and restore biology	2022	Completion of drawdown in 2020/2021	City of New Hope, Lake Association	\$ 150,000.00		\$ 40,000.00	\$ 190,000.00	375%	20	\$200,000.00	\$ 90.91	110 lb annual TP load reduction, restore native vegetation			#DIV/0!	#DIV/0!	#DIV/0!														
Shingle Creek WMO	Shingle Creek	Connections II stream restoration - 1,400 LF segment connecting previously resorted upstream and downstream segments resulting in a continuous 2.5 miles of resorted urban stream	Impaired for DO, bioassessments	Public impaired water	Stabilize and repair streambanks, enhance buffers, add and enhance habitat, add reeration structure	2020-2021	DNR, COE permitting	Cities of Brooklyn Park and Brooklyn Center	\$ 340,000.00		\$ 70,000.00	\$ 410,000.00	486%	20	\$420,000.00	varies from ~\$5K/lb TP to ~\$1,000 ton/sediment	Reduce soil loss from 26.8 to 6.3 tons/year and TP load from 5.4 to 1.3 lbs/year; maintain DO at or above 5 mg/L; increase MSHA from 39.7 to at least 50			#DIV/0!	#DIV/0!	#DIV/0!														
West Mississippi WMO												\$ -	#DIV/0!							#DIV/0!	#DIV/0!	#DIV/0!														
West Mississippi WMO												\$ -	#DIV/0!							#DIV/0!	#DIV/0!	#DIV/0!														
Carver County												\$ -	#DIV/0!							#DIV/0!	#DIV/0!	#DIV/0!														
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City	Rush Creek	3,500 lf of stream restoration and flood improv	TMDL approved for DO/FishBio/InvBio/E.Coli	Public Water draining to Hayden Lake and Mississippi River	Improve DO, FishBio, InvBio, and E.Coli parameters	2022	Funding, permitting, potentially need additional easements	City, Watershed	\$ 800,000.00		\$ 200,000.00	\$ 1,000,000.00	400%	30	\$ 33,333.00	\$ 222.22	5% improvement in this area for DO, FishBio, InvBio	Reduction in TSS and P loading. Improvement is stream riparian area.		#DIV/0!	#DIV/0!	#DIV/0!														
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Anoka SWCD	Highland Lake	Water quality improvement retrofits per SWA	Impaired for nutrients	Small natural environment lake, 80% contained within Kordiak County Park in Columbia Heights	Reduce TP load to Highland Lake by 10.4 lbs/yr.	2023	Land agreement with City of MPLS, engineering to address site constraints	WMO, City	\$ 20,000.00		\$ 100,000.00	\$ 120,000.00	20%	25	\$132,000.00	\$ 507.69	10.4 lbs-TP/yr reduction for 25 yrs	3,962 lbs-TSS/yr reduction for 25 years. Highland Lake is in the first ring suburban city of Columbia Heights in a county park. Columbia Heights is 30% minorities. Highland Lake discharges to Sullivan Lake and then to the Mississippi River.		#DIV/0!	#DIV/0!	#DIV/0!														
Anoka SWCD	Highland Lake	Water quality improvement retrofits per SWA	Impaired for nutrients	Small natural environment lake, 80% contained within Kordiak County Park in Columbia Heights	Reduce TP load to Highland Lake by 2.0 lbs/yr.	2023	Landowner recruitment and O&M agreements.	WMO, City	\$ 20,000.00		\$ 100,000.00	\$ 120,000.00	20%	20	\$179,000.00	\$ 4,475.00	2.0 lbs-TP/yr reduction for 20 yrs	600 lbs-TSS/yr reduction for 20 years. Highland Lake is in the first ring suburban city of Columbia Heights in a county park. Columbia Heights is 30% minorities. Highland Lake discharges to Sullivan Lake and then to the Mississippi River.		#DIV/0!	#DIV/0!	#DIV/0!														

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Technical Memo



Responsive partner.
Exceptional outcomes.

To: Shingle Creek/West Mississippi WMC Commissioners
From: Ed Matthiesen, P.E.
Diane Spector
Date: August 12, 2020
Subject: July 2020 Monthly Staff Report

Project Review Fees

Staff is still researching alternative fee structures, including potentially simply charging the applicant the actual cost of the project review. The TAC has received the Elm Creek WMO recommended policy and will consider options at its August 27 meeting and bring a recommendation to the Commissions.

County Levies

The Hennepin County Board approved the Commissions' requests to set maximum levies as requested with no changes.

Project Updates

SRP Reduction Project. Monitoring is underway. As noted previously, monitoring results continue to be less pronounced than last year, but the incoming SRP concentrations are lower than last year as well.

Crystal Lake Management Plan. Sediment core results have been received and are being reviewed. We've received the DNR special permit for fisheries research to perform the carp aging study, which has not yet been scheduled but will be completed in the next several weeks.

Bass and Pomerleau Lakes. The second round of alum treatment is currently being bid and will be expected to occur later this fall. Sediment core results have been analyzed to determine the effectiveness of the first dose and no adjustments are necessary. The filamentous algae bloom on Bass Lake this spring has mostly cleared up. Phosphorus concentrations in Bass and Pomerleau continue to be well below the state standard at both the surface and bottom samples.

Meadow Lake Drawdown

Staff have completed the design and are finalizing the water appropriation permit for the drawdown. Staff are still working with the DNR specifically in regard to a turtle conservation plan. On August 10, 2020, the New Hope City Council held the required public hearing on the drawdown. About 8 residents attended the virtual meeting, most spoke in support of the drawdown. One resident submitted written comments opposing the drawdown. The Meadow Lake Watershed Association canvassed the neighborhood and received signatures of consent from 93% of the riparian property owners; state law requires a minimum of 75%.