BROWN'S CREEK WATERSHED DISTRICT

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OAKDALE, MN
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REGULAR MEETING OF THE BOARD OF MANAGERS
Wednesday, September 13, 2023 at 6:30 PM

NOTE MEETING LOCATION
Regular Board Meeting will be held at
Family Means
1875 Northwestern Ave, Stillwater, MN 55082

1) Call Regular Meeting to order @ 6:30PM

2) Approve Regular Meeting Agenda and Discussion Agenda **-Board Action**

3) Public Comments

4) Consent Agenda – **Board Action** (*all items listed under the consent agenda are considered to be routine by the Board of Managers and will be enacted by one motion. There will be no separate discussion on these items unless a Manager removes an item from the consent agenda for discussion or there is a request to remove the item from the consent agenda, in which event the board will consider whether to remove the item from the consent agenda and consider it separately.*)
   a) Approve Board Meeting Minutes of the August 16, 2023 Workshop & Regular Meeting
   b) Accept Permit Fee Statement
   c) Approve registration and expenses for administrator and managers, as well as per diem for managers, for the MN Watersheds annual conference in Alexandria, MN on November 28-December 1, 2023

5) Treasurer's Report
   a) Review Authorized Funds Spreadsheet
   b) Current Items Payable-**Board Action (Roll Call Vote)**

6) Permitting
   a) BCWD Permit 22-18 Stillwater Oaks - **Board Action**

7) Project
   a) Brown's Creek Restoration Project
      (1) Public Hearing
      (2) Resolution 23-XX Order Brown's Creek Restoration Project **– Board Action**

8) 2024 Budget
   a) Public Hearing
   b) Resolution 23-XX 2024 Budget and Levy – **Board Action**

9) Discussion Agenda - No Action Required
   a) Updates
      (1) Administrator
      (2) Legal – Heifort Estates
      (3) Engineer - Permit Inspection Update, Iron Enhanced Sand Filter Performance
      (4) Managers
   b) October 2023 Regular Meeting BCWD Board Agenda

10) Adjournment

BROWN'S CREEK WATERSHED DISTRICT 9/8/2023	RULES							TYPE				FEES OWED	
APPLICANT/PERMIT NO.	2	3	4	5	6	7	Decomp action	GOV	SF RES	RES DEV	COM	EXEMPT	AMT DUE
Bergmann Development/Sanctuary Permit No. 05-12	X	X	X			X				X			$ -
Cannon Parking - Trellis Weddings & Events Permit 11-14	X	X									X		($2,480.25)
Brown's Creek Preserve Permit 13-10	X	X	X			X				X			$12,328.20
Stillwater Medical Center Parking Permit 13-26	X	X				X					X		$3,039.10
Brown's Creek Cove Permit 15-07	X	X	X			X				X			$3,255.41
Heifort Hills Permit 16-03	X	X	X	X		X				X			$778.49
Farms of Grant/White Oaks Savannah Permit 17-01	X	X	X			X				X			$18,222.99
The Lakes of Stillwater Permit 17-04	X	X	X			X					X		($154.75)
West Ridge Permit 17-17	X	X	X			X	X			X			$394.05
Heifort Hills Estates Permit 18-02	X	X	X			X	X			X			$40,853.96
Boutwell Farms Permit 18-04A	X	X	X			X	X			X			($1,068.94)
Hazel Place/Hertiage Ridge Permit 18-05 (Was 17-09)	X	X	X			X	X			X			($2,503.38)
Nottingham Village Permit 18-06	X	X	X			X				X			$650.03
Ridgecrest Permit 18-11	X	X				X	X				X		$16.68
St Croix Valley Recreation Center Expansion Permit 18-14		X				X	X	X				$6,970.28	
Rogness Residence Permit 18-15		X							X				$73.69
Central Commons Permit 19-05	X	X	X			X	X				X		($5,000.00)
TC_Orthopedics Permit 20-03											X		$10,100.00

APPLICANT/PERMIT NO.	RULES							TYPE				FEES OWED	
	2	3	4	5	6	7	Decomp action	GOV	SF RES	RES DEV	COM	EXEMPT	AMT DUE
Neal Ave Road Reconstruction Permit 20-05	X	X						X				$19,088.31	
CSAH 15-36 Interchange Permit 20-08		X			X	X		X				$19,233.85	
Wahlquist Permit 20-10		X								X			($989.54)
White Pine Ridge Permit 20-12		X					X			X			($631.32)
Boutwell Farms Lot 2 Permit 21-05		X					x		x				($436.54)
Boutwell Farms Lot 4 Permit 21-06		X					x		x				($788.82)
Brown's Creek Cove Lot 11 Permit 21-07		X							x				$287.27
Brown's Creek Cove Lot 14- 1855 White Pine Ct Permit 21-08		X							x				$289.89
Westridge Block 1 Lot 1 Permit 21-09 - NOPV, no permit received		X					x		x				$2,792.29
White Oak Savannah Lot 107 Permit 21-11 -Sharkey		X							x				($58.58)
Maryland Gateway Addition Permit 21-13	x	x				x				x			($928.11)
Divine Custom - Heritage Ridge Lot 3- Permit 21-14		x					x		x				($406.60)
Schwartz Residence Permit 21-15	x	x							x				($319.38)
Ignagni Residence WOS B1L2 Permit 21-16		x							x				$33.99
Boutwell Farm (Lot 8)- Sharkey Permit 21-18		x					x		x				($479.25)
Meron Residence-7950 Minar Ave Permit 21-19		x							x			$322.23	
Westridge (Block 2, Lot 2) - Sharkey Permit 21-20		x					x		x				($491.82)
Millbrook Park- City of Stillwater Permit 21-21	x	x	x					x				$6,631.63	
Bond Residence		X	X						x				($20.78)

APPLICANT/PERMIT NO.	RULES							TYPE				FEES OWED	
	2	3	4	5	6	7	Decomp action	GOV	SF RES	RES DEV	COM	EXEMPT	AMT DUE
Permit 21-22													
White Oak Savannah Lot 105- 7120 Lone Oak Trail		x							x				($223.78)
Permit 21-24													
Juliene/Guerinno		x							x				$469.62
Permit 21-28													
Lakeview EMS		x									x	$15.50	
Permit 21-32													
Fahey		x							x				($743.78)
Permit 21-34													
White Oak Savannah B2L2		x					?		x				($579.45)
Permit 21-35													
White Oak Savannah B2L5		x					?		x				($842.49)
Permit 21-36													
White Pine Ridge 152 Northland Terrace		x					x		x				($509.46)
Permit 21-38													
White Pine Ridge 454 Northland Terrace		x					x		x				($904.46)
Permit 21-39													
White Pine Ridge 507 Northland Terrace		x					x		x				($906.19)
Permit 21-40													
White Pine Ridge 256 Northland Terrace		x					x		x				($906.19)
Permit 21-41													
White Pine Ridge 559 Northland Terrace		x					x		x				($906.19)
Permit 21-42													
MNDOT TH-36		x						x				$2,123.00	
Permit 21-43													
Norell Ave N Improvements	x	x				x		x				$10,458.63	
Permit 21-45													
Wash Co. CSAH 15		x						x				$971.22	
Permit 22-01													
Gonyea (8 lots)		x								x			($1,426.58)
Permit 22-02													
Wetridge (12 lots) - Sharkey/GreenHalo		x								x			($591.44)
Permit 22-03 (Transferred 21-30 and 21-31)													
Boutwell Farm Lot 9 - Sharkey/GreenHalo		x								x			($263.26)
Permit 22-04													

APPLICANT/PERMIT NO.	RULES							TYPE				FEES OWED	
	2	3	4	5	6	7	Decomp action	GOV	SF RES	RES DEV	COM	EXEMPT	AMT DUE
13290 Boutwell Road N - Sharkey/GreenHalo Permit 22-05		x								x			($619.76)
Heritage Ridge Lot 2 (605 Heritage Place) - Sharkey/GreenHalo Permit 22-06		x								x			($545.73)
Liberty Classical Academy Permit 22-07	x	x											($2,012.13)
Boutwell Farm- Sharkey remaining lots- Transferred to 23-03 Permit 22-08		x								x			$818.72
Caribou (Herberger's Redevelopment) Permit 22-10	x	x									x		($3,721.26)
7125 Lone Oak Trail (WOS L106) Permit 22-11		x							x				$6,593.09
7171 Mid Oaks Ave N Permit 22-12		x							x				($799.74)
Cahill Residence Permit 22-14		x							x				$487.95
13199 Dellwood Rd Permit 22-15		x							x				$198.62
Stillwater Streets Imrpovement- paving 72nd st Permit 22-16		x						x				$0.00	
Read Residence Permit 22-17	x	x							x				$1,071.19
Stillwater Oaks Permit 22-18	x	x								x			$51,586.13
Miller Flood Protection Permit 22-19						x				x		$2,816.00	
Popeyes OPH Permit 22-20		x									x		($302.22)
3837 Tending Green Permi 22-21	x	x							x				($5,177.92)
Fanberg Residence - Manning Estates L4B3 Permi 22-22		x							x				($766.41)
Carl Lee Builder - Heritage Ridge L4B1 Permi 22-23		x							x				($444.05)
7138 Lone Oak Trl N (WOS L109) Permit 22-24		x							x				($272.56)
7164 Lone Oak Trl (WOS L113)		x							x				($305.44)

APPLICANT/PERMIT NO.	RULES							TYPE				FEES OWED	
	2	3	4	5	6	7	Decomp action	GOV	SF RES	RES DEV	COM	EXEMPT	AMT DUE
Permit 22-25													
WOS L102 Permit 22-27 transfer to 2023 permit #?		x							x				$0.00
WOS L118 Permit 22-29 transfer to 2023 permit #23-07		x							x				$691.52
Wash Co. CSAH 5 Phase II Permit 22-30		x						x				$691.52	
Wash Co. CSAH 57 culverts Permit 22-31		x						x				$0.00	
Cty Rd 61 Re-alignment Permit 23-01	x	x						x				$7,643.34	
WOS L114 - Cates (7211 Lone Oak Trail Tweden) Permit 23-02		x	x			x			x				$1,497.93
Boutwell Farm Lot 1 (2545 Boutwell Farm Rd) Permit 23-03		x											$6,255.10
Westridge B1L4 (986 Creekside) Permit 23-04		x											($755.25)
Rocket Carwash Permit 23-05	x	x											$4,824.00
Stillwater Street Improvements 2023 Permit 23-06		x						x				$1,313.14	
7239 Lone Oak Trail (WOS L118) Permit 23-07		x											$306.27
72nd St Road and Trail Improvements Permit 23-08												$3,123.29	
Kirn Residence (McLafferty 8000 Neal Ave) Permit 23-09		x							x				($734.75)
Curio Dance Studio Permit 23-10	x	x									x		$6,921.25
7273 Lone Oak Trail- WOS Lot 122 - Freiroy Residence Permit 23-11		x							x				$260.24
CSAH 9 -Keystone Ave - Culvert Replacement Permit 23-12						x		x				$1,484.50	
The Lakes - Phase III/Sandhill Shores		x								x			($604.64)

APPLICANT/PERMIT NO.	RULES							TYPE				FEES OWED	
	2	3	4	5	6	7	Decompaction	GOV	SF RES	RES DEV	COM	EXEMPT	AMT DUE
Permit 23-13													
Wiskow Berm		x							x				($963.96)
Permit 23-14													
7085 Lone Oak Trail- WOS L102- Mensah Residence		x							x				$755.00
Permit 23-15													
	90	326	34	15	27	160		71	153	13	119	$82,548.71	
TOTAL NON-EXEMPT DUE BCWD:													**$179,818.95**
Total due back to applicants if closed:													**($43,159.11)**

Brown's Creek Watershed District
2023 Budget
Revised 9-13-2023

		Revised 2022 Carry Forward for Approval	2023 Grants	2023 Levy	2023 Total Budget	Allocated	Available
100-2910	Designated Funds - Management Plan Projects	*$ 1,230,373.90*			$ 1,230,374		$ 1,175,778
					$ -		$ -
Revenue					$ -		$ -
100-3700	Interest Income				$ -		$ -
100-3601	Metropolitan Council Outlet Monitoring Grant		$ 5,000		$ 5,000		$ 5,000
100-3627	BWSR Clean Water Fund 2019 - Stormwater Reuse OG				$ -		$ 36,010
100-3628	BWSR Clean Water Fund 2020 - Stormwater Reuse SCC				$ -		$ -
100-3629	BWSR Clean Water Fund 2019 - Millbrook Riparian Restoration				$ -		$ 39,380
100-3630	Washington County Cost-share Applewood Reuse				$ -		$ 66,800
100-3631	MPCA Small Watershed Grant 2023-2026		$ 320,706		$ 320,706		$ -
100-3400	Permits				$ -		$ -
100-3100	Tax Levy			$ 1,150,415	$ 1,150,415		$ 1,122,277
TOTAL, ESTIMATED Sources of Funding		***$ 1,230,374***	***$ 325,706***	***$ 1,150,415***	**$ 2,706,494**	**$ -**	**$ 2,445,245**

ACCT. #	General Expenses	Revised 2022 Carry Forward for Approval	2023 Grants	2023 Levy	2023 Total Budget	Allocated	Available
200-4000	Manager Per Diem and Expense	*$ -*		$ 10,000	$ 10,000	$ 10,000	$ -
200-4220	Secretarial Services	*$ -*		$ 4,000	$ 4,000		$ 4,000
200-4250	Dues & Subscriptions (MAWD 5000 and LMCIT 2000)	*$ -*		$ 7,000	$ 7,000	$ 7,000	$ -
200-4270	Bonding & Insurance	*$ -*		$ 5,500	$ 5,500	$ 4,000	$ 1,500
200-4280	Postage & Delivery	*$ -*		$ 1,000	$ 1,000		$ 1,000
200-4290	Printing & Notices	*$ -*		$ 1,000	$ 1,000		$ 1,000
200-4330	Accounting	*$ -*		$ 4,305	$ 4,305	$ 4,100	$ 205
200-4331	Audit	*$ -*		$ 9,350	$ 9,350	$ 8,500	$ 850
200-4949	Misc., Other Expense	*$ -*		$ 2,000	$ 2,000	$ 1,000	$ 1,000
200-4320	Wash. Conservation District--Admin	*$ -*		$ 55,640	$ 55,640	$ 55,640	$ -
200-4265	Admin Conference Registrations	*$ -*		$ 2,000	$ 2,000	$ 250	$ 1,750
200-4410	Legal Fees - General	*$ (1,000.00)*		$ 25,480	$ 24,480	$ 24,480	$ -
200-4500	Staff Engineer	*$ -*		$ 27,090	$ 27,090	$ 27,090	$ -
	Diversity, Equity and Inclusion Training	*$ -*		$ 5,000	$ 5,000		$ 5,000
	Contingency Reserve	*$ 68,401.48*		$ -	$ 68,401		$ 68,401
TOTAL GENERAL FUND EXPENSES:		***$ 67,401.48***	***$ -***	***$ 159,365***	**$ 226,766**	**$ 142,060**	**$ 84,706**

ACCT. #	MANAGEMENT PLAN EXPENSES	Revised 2022 Carry Forward for Approval	2023 Grants	2023 Levy	2023 Total Budget	Allocated	Available
300-4320	Wash. Conservation District--Administrator	*$ 3,610.00*		$ 166,400	$ 170,010	$ 170,010	$ -
300-4410	Legal Fees - Mgmt Plan	*$ -*		$ 52,000	$ 52,000		$ 52,000
300-4501	Staff Engineer	*$ 5,841.00*		$ 80,325	$ 86,166	$ 86,166	$ -
300-4702	Permitting, Legal Review	*$ -*		$ 13,000	$ 13,000		$ 13,000
300-4703	Permitting, Engineering Review	*$ -*		$ 52,500	$ 52,500		$ 52,500
300-4704	Permitting, Inspection Database	*$ -*		$ 1,000	$ 1,000		$ 1,000
300-4710-1	Baseline Monitoring	*$ 13,215.00*	$ 5,000	$ 125,000	$ 143,215	$ 143,215	$ -
300-4640	Equip. Maint. and Upgrades	*$ -*		$ 27,500	$ 27,500	$ 9,080	$ 18,420
300-4810	Shared Educator Position	*$ -*		$ 20,500	$ 20,500	$ 20,500	$ -
300-4950	Management Plan Implementation -future projects	*$ 20,992.83*		$ -	$ 20,993		$ 20,993
903-0001	Trout Habitat Preservation Project: Monitoring,	*$ 2,231.00*		$ 6,300	$ 8,531	$ 8,531	$ (0)
909-0000	Rules Review/Evaluation	*$ 17,123.00*		$ 10,000	$ 27,123		$ 27,123
909-0001	Groundwater Dep Nat Resource Inventory update	*$ 10,000.00*		$ -	$ 10,000		$ 10,000
909-0002	Permitting Program Internal Procedure updates	*$ -*		$ 25,000	$ 25,000		$ 25,000
910-0000	Education & Outreach	*$ 6,537.00*		$ 10,000	$ 16,537	$ 8,031	$ 8,506
911-0000	Volunteer Stream Monitoring	*$ (203.50)*		$ 4,160	$ 3,957	$ 3,957	$ -
912-0000	Grant Preparation	*$ -*		$ 5,000	$ 5,000		$ 5,000
914-0000	Homeowner BMP Program	*$ 8,000.00*		$ 60,000	$ 68,000	$ 22,692	$ 45,308
922-0000	Plan Reviews - LGU/LWMP			$ -	$ -		$ -
923-0000	H & H Model Maintenance	*$ 5,000.00*		$ 5,250	$ 10,250		$ 10,250
923-0002	Flood Risk Assessment	*$ 108,000.00*		$ (8,000)	$ 100,000	$ 10,684	$ 89,316
927-0000	Management Plan Update	*$ 57,000.00*		$ 90,000	$ 147,000	$ 10,000	$ 137,000
929-0000	Long Lake Plan Implementation-shoreline management	*$ -*		$ 3,700	$ 3,700		$ 3,700
929-0010	Long Lake -Implementation - regional treatment	*$ 273,750.00*		$ (35,000)	$ 238,750	$ 228,234	$ 10,516
929-0011	Long Lake - 62nd Street Pond Retrofit Feasibility	*$ 15,773.00*		$ 3,350	$ 19,123		$ 19,123
929-0012	Long Lake - Marketplace Reuse Feasibility	*$ 1,919.07*		$ 164,900	$ 166,819	$ 1,919	$ 164,900
931-0001	Benz Lake Management Plan Implementation			$ 15,500	$ 15,500		$ 15,500
932-0004	Iron Enhanced Sand Filter/Performance Monitoring	*$ (9,000.00)*		$ 9,000	$ -		$ -
935-0000	Land Conservation Program	*$ 50,000.00*		$ 50,000	$ 100,000		$ 100,000
935-0002	110th Street Property Implementation	*$ 23,456.71*		$ 25,000	$ 48,457		$ 48,457
935-0003	Develop Land Conservation Priorities	*$ 20,000.00*		$ -	$ 20,000		$ 20,000
940-0000	BMP Program – LGU/Community Demonstration Projects	*$ 10,000.00*		$ -	$ 10,000		$ 10,000
940-0001	Flood Prevention Grant Program	*$ 100,000.00*		$ (100,000)	$ -		$ -
942-0004	Measuring Trends in GW Elevations & Flow	*$ 1,662.00*		$ 12,600	$ 14,262	$ 8,686	$ 5,576
942-0007	Groundwater - Browns Creek piezometers	*$ 11,200.00*		$ (2,240)	$ 8,960		$ 8,960
942-0011	Groundwater - Coordination with users	*$ 1,215.00*		$ 4,725	$ 5,940	$ 5,940	$ -
942-0012	Groundwater - Install Monitoring Wells	*$ 33,901.00*		$ 31,900	$ 65,801	$ 7,440	$ 58,361
942-0013	Groundwater - Pump Test	*$ 8,000.00*		$ 13,300	$ 21,300	$ 5,952	$ 15,348
947-0011	Countryside Auto BMP-performance monitoring	*$ (2,080.00)*		$ 2,080	$ -		$ -
947-0016	Brown's Creek - BC Trails Park Parking Lot Perfm Mon	*$ (2,600.00)*		$ 2,600	$ -		$ -
947-0017	Brown's Creek Implementation - Ecoli site visits/cost-share	*$ 10,000.00*		$ -	$ 10,000		$ 10,000
947-0018	Brown's Creek - Biological Survey (Macroinvert & Fish)	*$ 810.31*		$ 8,000	$ 8,810	$ 4,607	$ 4,203
947-0020	Brown's Creek - Stream Channel Survey	*$ -*		$ -	$ -		$ -
947-0022	Brown's Creek - Buffer and Stream Restoration	*$ 83,845.88*	$ 320,706	$ -	$ 404,551	$ 45,675	$ 358,876
947-0023	Brown's Creek - Golf Course Reuse - Oak Glen	*$ -*		$ 6,300	$ 6,300		$ 6,300
947-0025	Brown's Creek - Golf Course Reuse - SCC	*$ 44,000.00*		$ (44,000)	$ -		$ -
948-0000	CIP Maintenance	*$ 18,500.00*		$ 99,100	$ 117,600	$ 79,966	$ 37,634
950-0001	South School Curly Leaf Treatment			$ 8,000	$ 8,000	$ 6,890	$ 1,110
950-0002	Lynch Lake Fish/Veg Management	*$ 466.00*		$ 4,500	$ 4,966	$ 4,966	$ -
951-0001	Woodpile Lake Management Plan Implementation	*$ 10,000.00*		$ -	$ 10,000		$ 10,000
953-0000	Fen Management Plan Implementation	*$ (100.00)*		$ 4,100	$ 4,000	$ 4,000	$ -
956-0000	Bass East & West Management Plan	*$ -*		$ -	$ -		$ -
957-0000	Weather Station	*$ -*		$ 3,700	$ 3,700	$ 3,622	$ 78
959-0002	Resource Assessment - Diversion Tribs - Head cut Repairs	*$ 125,000.00*		$ (65,000)	$ 60,000		$ 60,000
959-0003	Resource Assessment - Brown's Creek Gorge Bluff	*$ 1,797.50*		$ -	$ 1,798	$ 1,798	$ -
960-0000	St Croix Phosphorus Reduction	*$ 10,000.00*		$ -	$ 10,000		$ 10,000
961-0000	Mendel Wetland Restoration Feasiblity	*$ 29,952.87*		$ 6,000	$ 35,953	$ 3,985	$ 31,968
962-0000	District-Wide Pond Management Planning/Implementation	*$ 24,156.75*		$ 10,500	$ 34,657	$ 24,157	$ 10,500
963-0000	District-Wide Vegetation Surveys	*$ 10,000.00*		$ -	$ 10,000		$ 10,000
964-0000	District-Wide Chloride Source Assessment			$ 2,500	$ 2,500		$ 2,500
TOTAL MANAGEMENT PLAN PROJECT EXPENSES:		***$ 1,162,972.42***	***$ 325,706***	***$ 991,050***	***$ 2,479,728***	***$ 930,702***	***$ 1,549,026***
TOTAL, OPERATING EXP. & MGMT. PLAN PROJECTS:		***$ 1,230,373.90***	***$ 325,706***	***$ 1,150,415***	***$ 2,706,494***	***$ 1,072,762***	***$ 1,633,732***

BROWN'S CREEK WATERSHED DISTRICT
9/13/2023
CURRENT ITEMS PAYABLE-PAGE 1 of 2

	YES	NO	ABSTAIN	ABSENT
ECKLES	_____	_____	_____	_____
JOHNSON	_____	_____	_____	_____
LEROUX	_____	_____	_____	_____
WIRTH	_____	_____	_____	_____

VENDOR		**ACCOUNT #**		ITEMS	TOTAL	**CK NO**
Emmons & Olivier Resources, Ir	Invoices August 2023					
	Inv. 41-0000-213 Retainer	300-4500	$	7,078.50		
	Inv. 41-0000-213 Retainer	200-4500	$	2,359.50		
	Inv. 41-0001-216 Permits 2000-2007	300-4703	$	7,978.25		
	Inv. 41-0255-62 Permits 2015					
	Permitting #15-07 Brown's Creek Cove	300-4703	$	739.50		
	Inv. 41-0307-78 Permits 2017					
	Permitting #17-01 Grant Holdings Subd	300-4703	$	573.00		
	Permitting #17-17 West Ridge	300-4703	$	855.41		
	Inv. 41-0330-67 Permits 2018					
	Permitting #18-02 Heifort Hills Estate	300-4703	$	147.00		
	Inv. 41-0365-41 Permits 2020					
	Permitting #20-10 Wahlquist Residence	300-4703	$	36.12		
	Permitting #20-12 White Pine Ridge	300-4703	$	175.50	\	
	Inv. 41-0384-29 Permits 2021					
	Permitting #21-11 WOS Lot 107	300-4703	$	36.78		
	Permitting #21-16 Ignagni Res WOS B1L2	300-4703	$	36.78		
	Permitting #21-21 Millbrook West Park	300-4703	$	993.26		
	Permitting #21-24 Nepal Residence WOS B1	300-4703	$	36.78		
	Permitting #21-35 WOS Lot 104	300-4703	$	36.78		
	Permitting #21-36 WOS Lot 110	300-4703	$	61.78		
	Inv. 41-0402-19 Permits 2022					
	Permitting #22-07 Liberty Academy	300-4703	$	211.87		
	Permitting #22-11 WOS Lot 106	300-4703	$	56.15		
	Permitting #22-14 Cahill Heritage Ridge L5	300-4703	$	92.00		
	Permitting #22-17 Read Residence	300-4703	$	48.62		
	Permitting #22-18 Stillwater Oaks	300-4703	$	12,032.25		
	Permitting #22-20 Popeyes	300-4703	$	302.28		
	Permitting #22-21 Tending Green	300-4703	$	19.37		
	Permitting #22-22 Fanberg Residence	300-4703	$	65.37		
	Permitting #22-23 Ferguson, Heritage Ridge L4	300-4703	$	29.25		
	Permitting #22-24 WOS Lot 109	300-4703	$	56.15		
	Permitting #22-25 WOS Lot 113	300-4703	$	56.15		
	Permitting #22-26 3823 Tending Green	300-4703	$	19.37		
	Permitting #22-30 CSAH 5 Ph2	300-4703	$	29.25		

EOR (Cont.)	Inv. 41-0420-8 Permits 2023				
	Permitting #23-01 CR 61	300-4703	$ 122.37		
	Permitting #23-02 WOS Lot 114	300-4703	$ 56.15		
	Permitting #23-03 Boutwell Farm Lot 1	300-4703	$ 36.12		
	Permitting #23-07 WOS Lot 118	300-4703	$ 19.37		
	Permitting #23-08 72nd Street	300-4703	$ 36.12		
	Permitting #23-10 Curio Dance Studio	300-4703	$ 501.75		
	Permitting #23-11 WOS Lot 122	300-4703	$ 193.40		
	Permitting #23-13 Sandhill Shores	300-4703	$ 36.12		
	Permitting #23-15 WOS Lot 102	300-4703	$ 1,059.75		
	Inv. 41-0421-8 IESF OM 2023	948-4500	$ 247.50		
	Inv. 41-0418-9 Brown's Ck Pk Restoration	947-0022	$ 3,258.75		
	Inv. 41-0414-9 OGGC Reuse Maintenance and Monitoring	947-0023	$ 351.51		
	Inv. 41-0430-2 Benz/School Section Outreach	962-0000	$ 6,799.50		
	Inv. 41-0432-1 Enhanced Stakeholder Engagement	927-0000	$ 977.50		
	Inv. 41-0426-3 Rare Plant Survey- Lynch Lake	950-0002	$ 549.58		
	Inv. 41-0205-72 CIP Operation and Maintenance	948-4500	$ 247.50		
	Inv. 41-0284-25 BCWD Education and Outreach	910-0000	$ 1,347.80		
	Inv. 41-0364-11 H&H Model Update	923-0000	$ 198.00		
	Inv. 41-0391-21 Millbrook HOA Restoration	947-0022	$ 235.00		
	Inv. 41-0424-3 BCWD 2023 Weather Station	957-4500	$ 370.24	$	50,807.05
Washington Conservation Distri	Inv. 6169 July 2023- Water Monitoring				
	Baseline Water Monitoring- labor	300-4710	$ 10,133.33		
	Baseline Water Monitoring- equipment	300-4640	$ 204.61		
	Inv. 6174 July 2023- BMP Program	914-0000	$ 1,680.50	$	12,018.44
Smith Partners	August Invoices				
	Inv. 44281 Retainer - Meetings, Preparation	200-4410	$ 2,078.84		
	Inv. 44282 General Legal Services	300-4410	$ 215.20		
	Inv. 44283 Planning	300-4410	$ 0.45		
	Inv. 44284 Budget/Levy/Audit	300-4410	$ 107.60		
	Inv. 44288 Capital Project Development	300-4410	$ 161.40		
	Inv. 44286 Sureities	300-4410	$ 242.46		
	Inv. 44285 Permits	300-4703	$ 3,072.54		
	Inv. 44287 Oak Glen Golf Club Project	300-4410	$ 53.80		
	Inv. 44290 Brown's Creek Restoration	300-4410	$ 734.40		
	Inv. 44289 Highway 36/Manning Reuse	300-4410	$ 26.90	$	6,693.59
Xcel Energy	Inv. 841778677- Iron Enhanced Sand Filter pump operation	948-4500	$ 40.10	$	40.10
Dave McCord	Inv. 4110 July 2023 Accounting Services	200-4330	$ 380.00	$	380.00

Kevin Helmer	#22-09 Permit Closure	300-4703	$	1,459.81	$	1,459.81
Gagne Custom Homes	#22-26 Permit Closure	300-4703	$	769.24	$	769.24
League of Minnesota Cities	Inv. 389390 2024 Membership Dues	200-4270	$	2,221.00	$	2,221.00
Xylem Water Solutions	Inv. 3556C88126 BCWD IESF Software Renewal	948-4500	$	582.00	$	582.00
Jim Lane	Herpatologist for BCWD Community Event	910-0000	$	200.00	$	200.00
Hannah Hendrickson (Mountain	Live music for BCWD Community Event	300-4703	$	200.00	$	200.00
Total Amount Disbursed					**$**	**75,371.23**

BROWN'S CREEK WATERSHED DISTRICT
9/13/2023
MONTHLY ITEMS DEPOSITED - Page 1 of 1

VENDOR	INVOICE/DESCRIPTION	ACCOUNT #	CK NO	DEPOSIT DATE		TOTAL
Emmons & Olivier	Return of Overpayment	300-4703	28012	9/7/2023	$	3,064.50
TOTAL AMOUNT DEPOSITED:					**$**	**3,064.50**

Brown's Creek Watershed District

Treasurer's Report

12-14-22

Checking balance (9903)	$1,073,008.65
Money Market balance (6671) :	$2,447.89
Permit balance (6614) :	$241,763.93
Certificate of Deposit balance:	$204,879.62
Total :	$1,522,100.09
Accounts payable:	$224,900.09
Unrecorded deposits:	$491,482.80
Total balance :	$1,788,682.80

Project Name |	BCWD Permit 22-18 Stillwater Oaks	**Date** |	09/08/2023
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Jason Palmby, Fairway Estates of Grant / Scott Dahlke, Civil Engineering Site Design		
Cc / Contact info |	Karen Kill, Administrator / BCWD		
From / Contact info |	Camilla Correll, PE; Ryan Fleming, PE; Paul Nation, PE; John Sarafolean / EOR		
Regarding |	Permit Application No. 22-18 Engineer's Report		

The following review of the above mentioned project located within the legal jurisdiction of the Brown's Creek Watershed District (BCWD) was conducted to determine compliance with the BCWD rules for purposes of the engineer's recommendation to the Board of Managers for its determination of the permit application.

Applicant: Jason Palmby, Fairway Estates of Grant
Permit Submittal Date: *7/26/2023*
Completeness Determination: *08/01/2023*
Board Action Required By: *09/30/2023*
Review based on BCWD Rules effective April 1, 2020
Recommendation: Consider Variance Request

GENERAL COMMENTS

Existing Conditions: The 148-acre site is the former Sawmill Golf Club. It is located south of Dellwood Road (County Road 96), southwest of McKusick Road and west of Manning Avenue. Existing large acreage lots are adjacent to the site to the north, east and west. There is a commercial restaurant property to the southeast (Gasthaus Bavarian Hunter) and another golf course to the south (Loggers Trail Golf Course). All existing impervious areas – cart paths, parking lot, and buildings – are to be removed prior to commencement of the proposed residential site redevelopment.

The entire site has three main discharge points:

- The northern portion of the site (67 acres + 3.6 acres of offsite drainage; area north of 88th Street North) has numerous discharge points along the Brown's Creek State Trail, all of which run east to a Manage 1 wetland complex located across Dellwood Road to the north and directly to the east of Knollwood Dr. N. This portion of the site includes 24 wetlands. All of these wetlands are less than an acre in size.
- The southern portion of the site (66 acres + 10.5 acres of offsite drainage; area between 88th Street North and Lofton Avenue) drains to a series of wetlands and discharges to the east towards the Gasthaus Bavarian Hunter. This portion of the site includes 8 wetlands. All of these wetlands are less than an acre in size.
- The southwestern portion of the site (15 acres + 2 acres of offsite drainage; west of Lofton Avenue) discharges west to the back of residential properties off of Lake Elmo Avenue. This portion of the site includes 1 wetland. This is the only wetland on the site that is greater than an acre in size.

The entire site is within one mile of Brown's Creek. The MPCA's Construction Stormwater Permit has additional requirements for projects with a discharge point within one (1) mile (aerial radius measurement) of and which flows to an impaired water as described under Rule 2.0 Stormwater Management and Rule 3.0 Erosion and Sediment Control.

Proposed Conditions: The proposed project will subdivide the existing 148-acre site into 15 residential properties and include the construction of approximately 2,600 linear feet of new street with bituminous pavement, and rural ditches with driveway culverts. The residential lots will be sold individually to builders for construction of the driveways and homes. The stormwater management plan provides for 0.5-acre impervious coverage to account for the home and the driveway on each lot. Each builder and homeowner will determine the final design and layout, and adjustments and modifications to the stormwater plan may need to be submitted as permit modifications or will be addressed in individual-lot permits.

The proposed redevelopment will maintain the three main discharge points as well as the discrete discharge points described above under existing conditions as follows:

- The northern portion of the site, shaded red on Figure 1, will be subdivided into eight (8) lots. Stormwater runoff from the northern portion of the site will be collected via roadway ditches from the streets, driveways, and front lawns and routed to one stormwater management basin (wet pond) located at the most westerly entrance from McKusick Road. This basin has been designed to capture stormwater runoff for reuse via irrigation. Rear lot drainage is routed to existing wetlands or smaller detention basins (5) designed to meet the stormwater management requirements before discharging to the Brown's Creek State Trail or to the main discharge point under McKusick Road. This portion of the site is subdivided into 26 subwatersheds and includes 24 wetlands. Six of the wetlands were determined to be incidental under the Wetland Conservation Act; that is, not protected under WCA. One wetland is going to be incorporated into a new, larger wetland; the remaining 5 incidental wetlands will remain undisturbed. In addition, 6.5 acres of tree preservation and native vegetation restoration areas will provide volume control through evapotranspiration.
- The southern portion of the site, shaded purple on Figure 1, will be subdivided into seven (7) lots. Stormwater runoff from the southern portion of the site will be collected via roadway ditches from the streets, driveways, and front lawns and routed to three stormwater management basins (wet ponds), two of which are located at the entrance from 88th Street N and one which is located near the entrance road (Leeward Circle) cul-de-sac. One of these basins has also been designed to capture stormwater runoff for reuse via irrigation. Rear lot drainage is routed to existing wetlands and an infiltration basin before discharging east towards Brown's Creek State Trail. In addition, 4.7 acres of tree preservation and native vegetation restoration areas will provide evapotranspiration-based volume control where infiltration is not feasible.

- Stormwater runoff from the southwestern portion of the site, shaded yellow on Figure 1, drains to the larger wetland and the back of the adjacent residential properties. 1.6 acres of tree preservation and native vegetation restoration areas will provide evapotranspiration-based volume control because geotechnical analysis found that infiltration is not feasible.

Recommendation: As discussed under Section 10.0 – Variances, the BCWD engineer does support approval of the variance requested by the applicant from the volume control requirement.

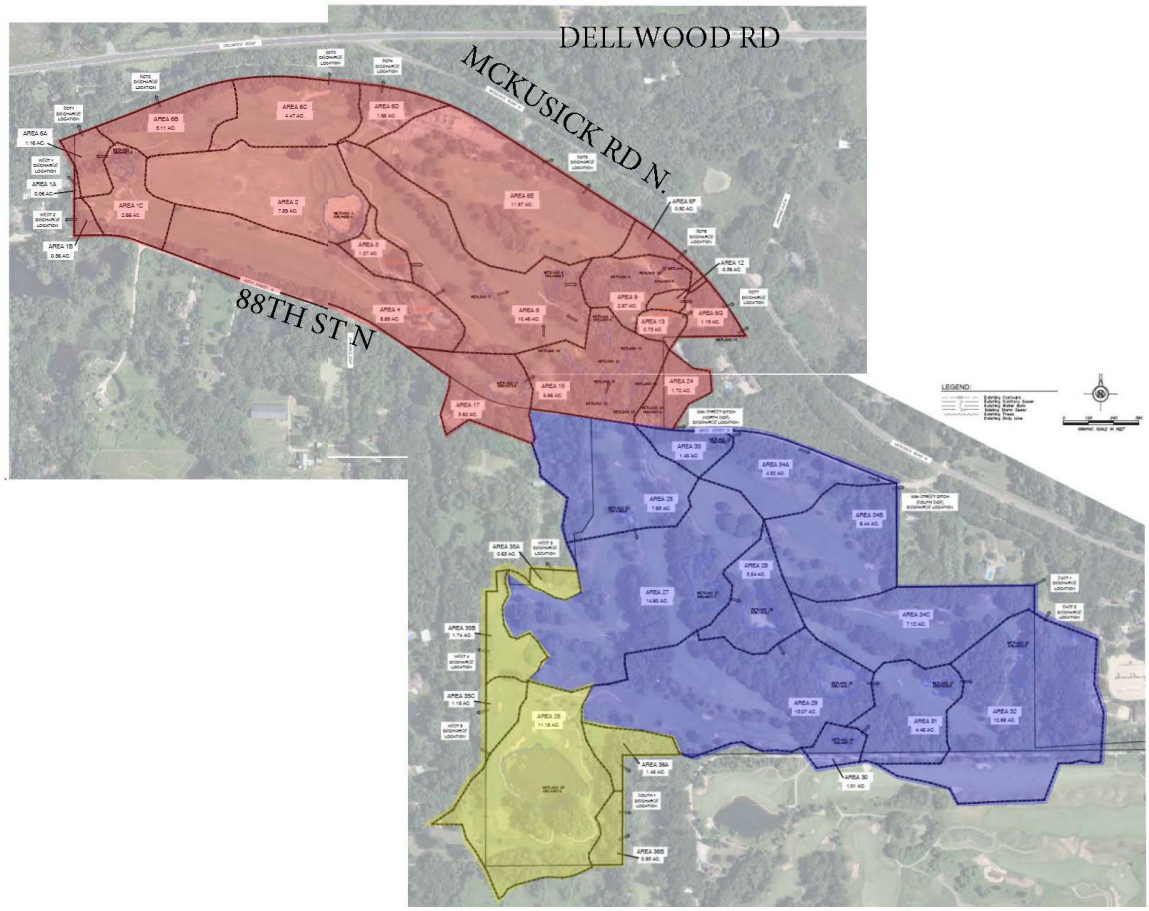


Figure 1 - Site Plan

Rule 2.0—STORMWATER MANAGEMENT

Under 2.2(b) of the rule, the proposed project triggers the application of Rule 2.0 Stormwater Management because it is a residential subdivision of more than four lots. The site is outside the Diversion Structure Drainage area, so the criteria in subsection 2.4.1a apply. Since the proposed activity will disturb more than 50 percent of existing impervious surface, the Stormwater Management Standards will apply to all impervious surface and disturbed areas.

The stormwater management plan for the project includes:

- *Roadway ditches which capture runoff from the roadway and the front of the lots and route it to the stormwater management facilities.*
- *Four (4) stormwater management basins (wet ponds) holding permanent pools allowing pollutants and sediment to settle out, two of which will be used for stormwater harvest and reuse for irrigation of the surrounding homes.*
- *Five (5) detention basins (rate control/dry ponds) that control peak flow rate and reduce the effects of erosion.*
- *One infiltration basin.*
- *12.8 acres of tree preservation and native vegetation restoration areas which will provide evapotranspiration-based volume control where infiltration is not feasible.*
- *The applicant is requesting a variance concerning the rate and volume requirements that is addressed in Section 10.0 – Variances.*

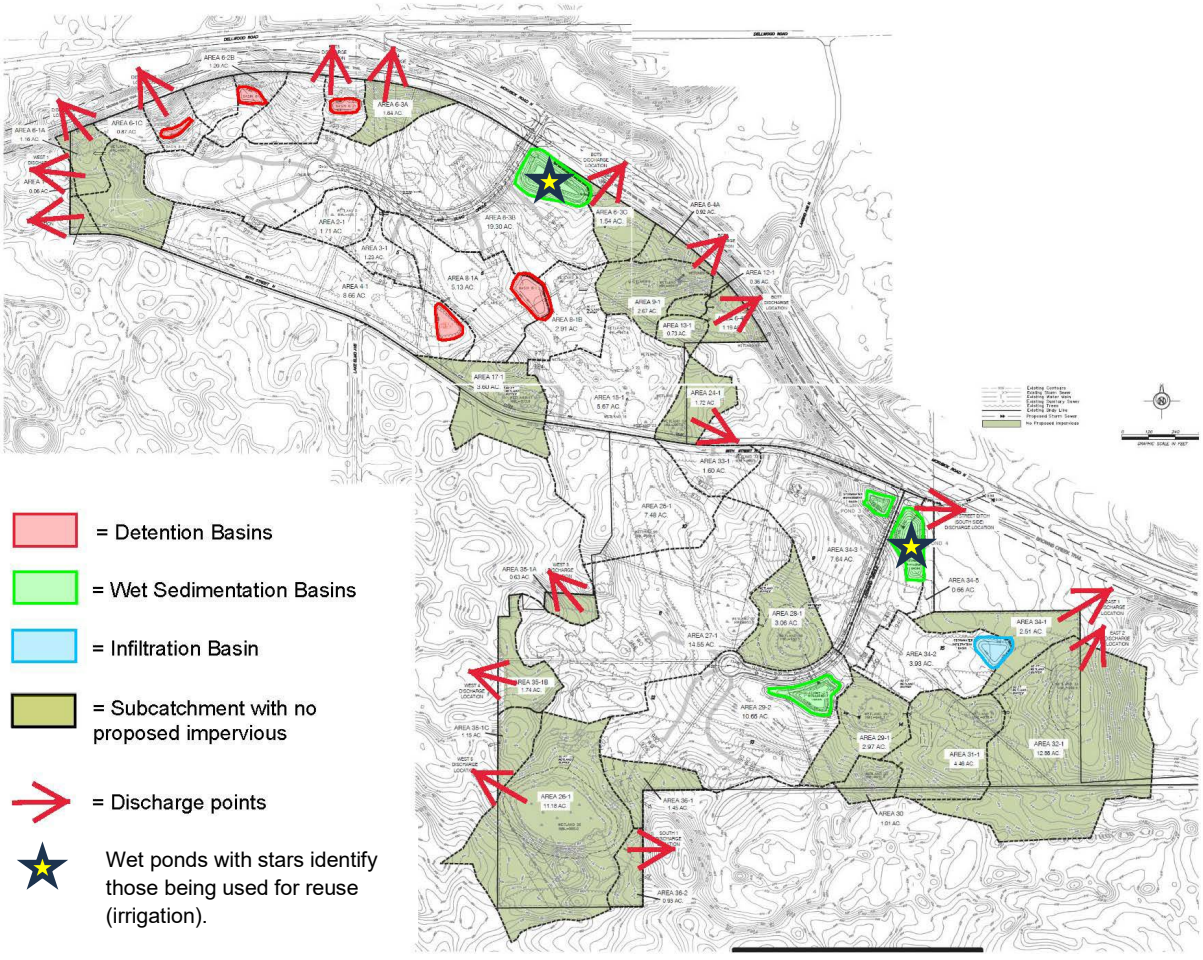


Figure 2 - Proposed stormwater facilities and offsite discharge points

Rate Control

According to BCWD Rule 2.4.1(a)(i), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not increase peak stormwater flow from the site, as compared with the pre-settlement condition, for a 24-hour precipitation event with a return frequency of two, 10 or 100 years for all points where discharges leave a site.

☒ Rule Requirement Not Met – See Section 10.0 Variances

The stormwater management plan developed for the site was evaluated using a HydroCAD model of pre-settlement and post-development site conditions. A comparison of the modeled peak flow rates is included in Tables 1 & 2. Offsite discharge rates that exceed the pre-settlement rate are underlined and marked with an asterisk. See Section 10.0 for further analysis and discussion of this variance request.

Table 1 - Peak Discharge Rate Summary – North Drainage Area

Subcatchment Area [Pre-settlement / Post-development]	*Pre-settlement Runoff Rates [cfs]*			*Proposed Runoff Rates [cfs]*		
	2 yr (2.81")	*10 yr (4.17")*	*100 yr (7.23")*	*2 yr (2.81")*	*10 yr (4.17")*	*100 yr (7.23")*
Area 1A to West 1	0.04	0.10	0.27	0.04	0.10	**0.28***
Area 1-1A to West 1*						
Area 1B to West 2	0.22	0.60	1.63	0.22	0.60	1.63
Area 1-1B to West 2*						
Area 6A & WL1 to BCT1	0.72	1.92	5.26	0.72	1.92	5.26
Area 6-1A & WL1 to BCT1*						
Area 6B to BCT2	1.94	5.15	14.10	1.66	3.74	13.08
Area 6-1B, C, D to BCT2						
Area 6C to BCT3	2.78	7.40	20.26	2.22	5.10	11.92
Area 6-2A, B, C to BCT3						
Area 6D to BCT4	1.03	2.73	7.48	**1.12***	**2.86***	**7.65***
Area 6-3A to BCT4*						
Area 6E to BCT5	4.32	14.72	46.44	1.31	9.34	25.25
Area 6-3C & Basin 1 to BCT5						
Area 6F & WL9 to BCT6	1.66	5.75	44.25	0.96	5.49	28.79
Area 6-4A & WL9 to BCT6						
Area 6G, 12, 13 to BCT7*	1.42	3.78	10.33	**1.62***	**4.08***	**10.77***
Area 6G, 12, 13 to BCT7*						
Wetland 24 to North Ditch	0	0	0.40	0	0	0.40
Wetland 24 to North Ditch						

Table 2 - Peak Discharge Rate Summary – South Drainage Area

Subcatchment Area [Pre-settlement / Post-development]	*Pre-settlement Runoff Rates [cfs]*			*Proposed Runoff Rates [cfs]*		
	2 yr (2.81")	*10 yr (4.17")*	*100 yr (7.23")*	*2 yr (2.81")*	*10 yr (4.17")*	*100 yr (7.23")*
WL 33, 34A, 34B to S Ditch WL 33, Basin 34-4, Area 34-5 to S Ditch	0.04	1.08	14.19	0.03	0.42	5.80
Area 34-C to East 1 Area 34-1, Basin 34-2 to East 1	0.09	1.39	10.30	0	0.15	10.06
Wetland 32 to East 2 Wetland 32 to East 2*	0	0	4.70	0	0	**5.41***
Area 35A to West 3 Area 35-1A to West 3*	0.11	0.53	2.03	**0.17***	**0.67***	**2.28***
Area 35B to West 4 Area 35-1B to West 4*	1.08	2.88	7.89	**1.51***	**3.52***	**8.78***
Area 35C & WL 26 to West 5 Area 35-1C & WL 26 to West 5*	0.72	1.90	5.21	**1.00***	**2.32***	**5.80***
Area 36A, 36B to South 1 Area 36-1, 36-2 to South 1*	0.11	1.06	5.77	**0.15***	**1.20***	**6.08***

Volume Control

According to BCWD Rule 2.4.1(a)(ii), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not increase stormwater flow volume from all points where discharge leaves the site, as compared with the pre-settlement condition, for a 24-hour precipitation event with a return frequency of two years, or five years within a landlocked basin or a subwatershed draining to a landlocked basin.

☒ Rule Requirement Not Met – See Section 10.0 Variances

The stormwater management plan developed for the site was evaluated using a HydroCAD model of pre-settlement and post-development site conditions. A comparison of the modeled runoff volume is included in Table 3. Offsite discharge volumes that exceed the pre-settlement volume are underlined and marked with an asterisk. See Section 10.0 for further analysis and discussion of this variance request.

Table 3 – 2-Year 24-Hour Event Discharge Volume

Discharge Point	*Pre-settlement Runoff Volume [cf]*	*Proposed Runoff Volume [cf]*	*Volume Control Required [cf]*	*Volume Reduction Provided [cf]*	*Volume Shortfall [cf]*
West 1	133	142	9	0	9*
West 2	799	799	0	0	0
SUB-TOTAL			***9***	***0***	***9****
BCT1	2,574	2,574	0	1,103	0
BCT2	6,901	8,481	1,580	0	1,580*
BCT3	9,919	13,658	3,739	0	3,739*
BCT4	3,661	3,891	230	0	230*
BCT5	18,336	53,721	35,385	27,205	8,180*
BCT6	7,001	22,479	15,478	11,795	3,683*
BCT7	5,059	5,588	529	0	529*
SUB-TOTAL			***56,941***	***40,103***	***16,838****
N. 88th Ditch	0	0	0	749	0
S. 88th Ditch	843	8,804	7,961	12,130	0
SUB-TOTAL			***7,961***	***12,879***	***0***
East 1	1,569	7,906	6,337	7,906	0
East 2	0	0	0	10,784	0
SUB-TOTAL			***6,337***	***18,690***	***0***
West 3	612	815	203	0	203*
West 4	3,861	4,990	1,129	0	1,129*
West 5	2,552	3,298	746	2,004	0
SUB-TOTAL			***2,078***	***2,004***	***74****
South 1	1,126	1,298	172	0	172*
SUB-TOTAL			***172***	***0***	***172****
TOTAL			**73,489**	**73,676**	**n/a**

Pollutant Loading

According to BCWD Rule 2.4.1(a)(iii), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not at the downgradient property boundary or to an onsite receiving waterbody or wetland, increase annual phosphorus loading as compared with the pre-development condition.

☒ Rule Requirement Met

The Permit Applicant submitted MIDS Calculator results demonstrating that annual phosphorus loading does not increase when compared to pre-development conditions at the 17 individual discharge points as shown in Table 4.

Table 4 - Offsite Annual Phosphorus Loading

Discharge Point	*Pre-Development Phosphorus Load (lbs/yr)*	*Proposed Phosphorus Load (lbs/yr)*
West 1*	No Change (Proposed = Pre-development Phosphorus Load)	
West 2*	No Change (Proposed = Pre-development Phosphorus Load)	
BCT1*	No Change (Proposed = Pre-development Phosphorus Load)	
BCT2	1.6	0.6
BCT3	1.8	1.8
BCT4	0.8	0.4
BCT5	24.9	17.9
BCT6	2.0	1.9
BCT7	0.6	0.5
N. 88th Ditch (Wetland 25)	1.7	1.7
S. 88th Ditch (Basin 4)	2.2**	2.1
East 1 (Infiltration Basin)	1.1**	0.00
East 2	13.6	10.3
West 3	0.2	0.2
West 4	0.7	0.7
West 5	3.7	3.2
South 1	0.8	0.4

*The drainage area and vegetation coverage discharging to these locations will remain unchanged from the pre-development condition, i.e., they will remain perennial vegetation without impervious. Therefore, there will be no increase in annual phosphorus loading as compared with the pre-development condition at the downgradient property boundary in these locations.

**Area weighted loading based on combined MIDS model of "Pre-development for areas south of 88th Street that drain east to Browns Creek Trail"

Table 5 demonstrates that annual phosphorus loading is reduced from pre-development conditions for each onsite receiving wetland. Pollutant loading analysis was not conducted for, and the related criterion was not applied to, the six incidental wetlands because they are manmade aesthetic or irrigation-system features of low quality that do not provide cognizable wetland functions and values.

Table 5 – Onsite Receiving Wetland Phosphorus Loading

Wetland	*Pre-Development Annual Phosphorus Loading (lbs/yr)*	*Proposed Annual Phosphorus Loading (lbs/yr)*
1	0.9	0.8
2	3.3	0.2
5	1.4	1.0
8	1.5	1.4
9	0.3	0.3
10	0.1	0.1
11	0.2	0.2
15	0.2	0.2
16	0.5	0.5
17	0.3	0.3
18	0.3	0.3
19	0.1	0.1
20	0.0	0.0
21	0.1	0.1
22	0.2	0.2
23	0.2	0.2
24	0.2	0.1
25	1.7	1.7
26	3.3	3.3
27	3.6	3.5
28	0.5	0.4
29	4.0	3.4
30	0.1	0.1
31	0.6	0.6
32	1.2	1.2
33	0.4	0.4

Infiltration Pretreatment

According to BCWD Rule 2.5.2 surface flows to infiltration facilities must be pretreated for long-term removal of at least 50 percent of sediment loads.

☒ Rule Requirement Met

The project includes an infiltration basin to meet the stormwater requirements (rate, volume, and water quality). Therefore, pretreatment is required for runoff directed to this facility.

All runoff being routed to the infiltration basin will first be directed to a grass swale. The Permit Applicant submitted MIDS Calculator results demonstrating compliance with Rule 2.5.2. The pretreatment requirement is met as demonstrated by the results in Table 6.

Table 6 - Infiltration Basin Pretreatment

Practice	*TSS Inflow Loading (lb/yr)*	*TSS Outflow Loading (lb/yr)*	*TSS Reduction (%)*
Grass Swale	312.1	31.7	90

Lake/Wetland Bounce

According to BCWD Rule 2.4.1(a)(iv), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not increase the bounce in water level or duration of inundation, for a 24-hour precipitation event with a return frequency of two, 10 or 100 years in the subwatershed in which the site is located, for any downstream lake or wetland beyond the limit specified in Appendix 2.1.

☒ Rule Requirement Met

Wetland bounce and duration of inundation was analyzed for the 2-year, 10-year, and 100-year 24-hour rainfall events. All wetlands onsite are classified as Manage 2 wetlands which have a permitted bounce of Pre-development plus 1.0 feet, and a permitted increase in inundation of 2 days and 14 days for the 2-year and 10-year events, respectively. Table 7 and Table 8 display that the standards are met for Rule 2.4.1(a)(iv). Note that wetlands 8, 9, and 15 form complexes with other onsite wetlands that act as a single waterbody hydrologically, and therefore, have been grouped in the tables below.

Table 7 – Wetland Duration of Inundation

	Pre-Settlement Duration of Inundation (hrs)		*Proposed Duration of Inundation (hrs)*		*Change in Duration of Inundation (hrs)*	
Wetland	***2-year***	***10-year***	***2-year***	***10-year***	***2-year***	***10-year***
1	12	12	12	12	0	0
2	24	26	14	18	-10	-8
8 Complex	14	23	49	54	35	31
9 Complex	13	24	44	48	31	24
15 Complex	13	14	21	22	8	8
17	10	11	10	11	0	0
24	12	13	12	13	0	0
25	15	15	21	23	6	8
26	12	11	10	12	-2	-1
27	22	23	26	28	4	5
28	24	25	23	24	-1	-1
29	30	32	35	38	5	6
30	12	13	12	13	0	0
31	43	35	71	41	28	6
32	7	31	11	42	4	11
33	12	13	18	20	6	7

Table 8 – Wetland Bounce

	**Pre-Settlement Peak Elevation (ft)*			*Proposed Peak Elevation (ft)*			*Bounce (ft)*		
Wetland	***2-yr***	***10-yr***	***100-yr***	***2-yr***	***10-yr***	***100-yr***	***2-yr***	***10-yr***	***100-yr***
1	995.48	996.60	997.54	995.55	996.67	997.56	0.1	0.1	0.0
2	988.72	988.89	989.35	988.19	988.39	988.75	-0.5	-0.5	-0.6
8 Complex	961.59	962.03	962.70	961.88	962.01	962.39	0.3	0.0	-0.3
9 Complex	953.85	954.01	954.76	954.21	954.41	954.90	0.4	0.4	0.1
15 Complex	966.86	967.28	967.62	966.93	967.34	967.64	0.1	0.1	0.0
17	972.35	972.90	973.86	972.38	972.94	973.87	0.0	0.0	0.0
24	965.59	966.59	967.56	965.59	966.59	967.56	0.0	0.0	0.0
25	959.92	960.11	960.59	959.94	960.18	960.64	0.0	0.1	0.0
26	966.41	966.85	967.94	966.45	966.92	968.03	0.0	0.1	0.1
27	952.69	953.00	953.75	952.75	953.11	953.83	0.1	0.1	0.1
28	947.99	948.31	949.09	947.90	948.22	950.08	-0.1	-0.1	1.0
29	945.37	945.75	946.68	945.32	945.68	946.29	0.0	-0.1	-0.4
30	949.58	950.22	951.41	949.58	950.22	951.41	0.0	0.0	0.0
31	936.54	937.77	938.77	935.63	937.73	938.41	-0.9	0.0	-0.4
32	915.56	919.39	923.49	915.71	919.41	923.51	0.2	0.0	0.0
33	964.40	965.09	965.70	964.76	965.47	965.81	0.4	0.4	0.1

Wetlands onsite were evaluated for bounce and inundation against pre-settlement conditions for a conservative evaluation as pre-settlement runoff is less than existing conditions, therefore meeting pre-settlement bounce and duration of inundation is a stricter threshold than existing conditions.

Maintenance

According to BCWD Rule 2.6, Permit applicants must provide a maintenance, inspection and, if required, monitoring plan that identifies and protects the design, capacity and functionality of onsite and offsite stormwater management facilities; provides specifications, methods and a schedule for the inspection and maintenance in perpetuity of the facility, with documentation retained onsite and available to the District on reasonable notice; and contains at a minimum the requirements in the District's standard maintenance declaration. The maintenance plan will be recorded on the deed in a form acceptable to the District.

☒ Rule Requirements Met <u>with Conditions</u>

The following conditions must be addressed in the maintenance plans provided by the applicant:

- *Include in the maintenance plan protection of all natural areas to be used to meet stormwater-management requirements through evapotranspiration.*
- *Include protection of all vegetated areas that must be preserved for irrigation use on individual properties in the maintenance plan and require documentation of the weekly depth of water to be used for irrigation and the dates during which the irrigation system will be active.*
- *Include in the maintenance plan detail on the frequency of infiltration basin inspections and routine maintenance.*
- *Include a vegetation maintenance schedule.*

Rule 2.0 Conditions:

2-1. Provide BCWD with the final Civil Plan Set (BCWD 2.7.9)

2-2. Provide a stormwater facility maintenance declaration in a form acceptable to the District and proof of recordation with Washington County. Resolve conditions above concerning the submitted maintenance plan. A template is available under the permit section of the District's website. The maintenance declaration shall be recorded with the County after a draft is approved by the District (BCWD Rule 2.6).

2-3. Provide documentation as to the status of a National Pollutant Discharge Elimination System stormwater permit for the project from the Minnesota pollution Control Agency and provide an updated Storm Water Pollution Prevention Plan (SWPPP) if any changes are made from the current version. (BCWD Rule 2.7.15).

2-4. Provide the District with a spreadsheet tracking the amount of impervious coverage per lot, the drainage areas impervious is located, and compared to the assumed in the stormwater management plan / calculations. The BCWD will use this tracking tool to make sure that the construction of individual lots complies with what is approved under this permit.

2-5. Submit irrigation-utilization plans showing the irrigation capacity of the system and the areas that will be irrigated, along with requirement that property owners utilize irrigation system.

2-6. The orifice size on the plan set for outlet control structure 1 (OCS-1) is different from the HydroCAD model which the rate control analysis is based on. Correct the orifice size in the OCS-1 structure for wet sedimentation basin 1 so the specifications of the structure correspond to the HydroCAD model inputs.

Rule 3.0—EROSION CONTROL

According to BCWD Rule 3.2, All persons undertaking any grading, filling, or other land-altering activities which involve movement of more than 50 cubic yards of earth or removal of vegetative cover on 5,000 square feet or more of land must submit an erosion control plan to BCWD, and secure a permit from BCWD approving the erosion control plan. The proposed project triggers the application of Rule 3.0 Erosion Control because the proposed development activity will both move more than 50 cubic yards of earth and remove more than 5,000 square feet of vegetation.

☒ Rule Requirements Met with Conditions

The erosion and sediment control plan includes:

- *SWPPP*
- *Rock construction entrances*
- *Storm sewer inlet protection*
- *Fiber log ditch checks*
- *Silt fence perimeter controls*
- *Wood fiber logs*
- *Rip Rap at flared end outlets*
- *Construction fence to protect natural areas*

The following conditions must be addressed in the erosion and sediment control plan to comply with the District's requirements:

Rule 3.0 Conditions:

3-1. Provide the District with contact information for the Erosion Control Supervisor and the construction schedule when available (BCWD 3.3.2).

Rule 4.0—LAKE, STREAM, AND WETLAND BUFFER REQUIREMENTS

According to BCWD Rule 4.2.1, Rule 4.0 applies to land that is (a) adjacent to Brown's Creek; a tributary of Brown's Creek designated as a public water pursuant to Minnesota Statutes section 103G.005, subdivision 15; a lake, as defined in these rules; a wetland one acre or larger; or a groundwater-dependent natural resource; and (b) that has been either (i) subdivided or (ii) subject to a new primary use for which a necessary rezoning, conditional use permit, special-use permit or variance has been approved on or after April 9, 2007, (for wetlands and groundwater-dependent natural resources other than public waters) or January 1, 2000 (for other waters).

☒ Rule Requirements Met

Rule 4.0 applies to the site because there is a wetland onsite (adjacent) that is larger than an acre in size and the property is being subdivided after April 9, 2007 (triggers Rule 4.2.1(b)). Under Rule 4.3, a buffer width of 50 feet applies to the wetland because it has been classified as a Manage 2 wetland (BCWD 4.3.1).

There are a total of 33 wetlands located on the 148-acre site. All but one of these wetlands are less than an acre in size. A wetland evaluation was conducted using the Minnesota Routine Assessment Method (MNRAM) for evaluating wetland function. This assessment found all 33 wetlands to be Manage 2 wetlands and not groundwater dependent. EOR reviewed the MNRAM Assessment and

agrees with this finding. Wetland 26, which is the only wetland that is an acre or larger, is subject to Rule 4.3.1 and requires a 50-foot buffer.

Under Rule 4.4.1, at the time a buffer is created under Rule 4.0, the District may require a planting or landscaping plan to establish adequate native vegetative cover for area that (a) has vegetation composed more than 30 percent of undesirable plant species (including, but not limited to reed canary grass, common buckthorn, purple loosestrife, leafy spurge, bull thistle, or other noxious weeds); or (b) consists more than 10 percent of bare or disturbed soil or turf grass.

Review of the current vegetative condition in the proposed buffer has not been assessed. As a condition of permit approval, the buffer vegetation needs to be analyzed and the project landscaping plan should be modified as appropriate to establish native vegetative cover given the findings of the analysis.

Rule 4.0 Conditions:

4-1. Provide a buffer declaration in a form acceptable to the District and proof of recordation with Washington County. A template is available under the permit section of the District's website. The buffer declaration shall be recorded with the County after a draft is approved by the District (BCWD Rule 4.2.2).

4-2. Conduct an assessment of the proposed buffer area to determine the vegetative composition of undesirable plant species, bare, disturbed soil or turf grass and provide BCWD with a buffer establishment plan for review and approval.

Rule 5.0—SHORELINE AND STREAMBANK ALTERATIONS

According to BCWD Rule 5.2, no person may disturb the natural shoreline or streambank partially or wholly below the ordinary high water mark of a waterbody, without first securing a permit from the District.

☐ Rule Not Applicable to Permit. *There are no proposed shoreline or streambank alterations.*

Rule 6.0—WATERCOURSE AND BASIN CROSSINGS

According to Rule 6.2, no person shall use the beds of any waterbody within the District for the placement of roads, highways and utilities without first securing a permit from the District.

☐ Rule Not Applicable to Permit. *There are no proposed watercourse or basin crossings.*

Rule 7.0—FLOODPLAIN AND DRAINAGE ALTERATIONS

According to Rule 7.2, no person shall alter or fill land below the 100-year flood elevation of any waterbody, wetland, or stormwater management basin, or place fill in a landlocked basin, without first obtaining a permit from the District. No person shall alter stormwater flows at a property boundary by changing land contours, diverting or obstructing surface or channel flow, or creating a basin outlet, without first obtaining a permit from the District.

☒ Rule Requirements Met

No fill is proposed below the 100-year flood elevation of any waterbody, wetland, or storm water management basin. Stormwater flows are proposed to be altered at discharge points as outlined in Section 10.0 – Variances.

According to BCWD rule 7.3.2 all new and reconstructed buildings must be constructed such that the lowest floor is at least two feet above the 100-year high water elevation or one foot above the emergency overflow (EOF) of a constructed basin.

☒ Rule Requirements Met

Table 9 – Freeboard Requirement Summary

Lot	*Waterbody*	*EOF*	*100-Year HWL*	*Allowable Basement Floor*	*Lowest Proposed Basement Floor*
1	Basin 6-3	947.60	947.60	948.60	970
2	Basin 6-21	978.00	977.67	979.00	990
3	Basin 6-1	994.00	993.84	995.00	1002
3	Wetland 1	997.40	997.56	999.56	1002
4	Wetland 2	988.70	988.75	990.75	997
5	Wetland 2	989.00	988.75	990.00	991
6	Basin 8-1	966.00	965.94	967.00	973
7	Wetland 17	973.80	973.87	975.87	976
8	Basin 6-3	947.60	947.60	948.60	952
9	Basin 34-3	934.60	932.95	934.95	965
10	Wetland 33	965.50	965.81	967.81	970
10	Wetland 25	959.90	960.64	962.64	970
10	Wetland 27	952.60	953.83	955.83	970
11	Wetland 27	952.60	953.83	955.83	966
12	Wetland 26	970.20	968.03	970.03	974
13	Basin 29-2	947.75	947.57	948.75	982
15	Basin 34-4	935.50	932.93	934.93	940
15	Infiltration Basin 34-2	931.50	932.10	934.10	940

According to Rule 7.3.5, The District will issue a permit to alter surface flows under paragraph 7.2, above, only on a finding that the alteration will not have an unreasonable impact on an upstream or downstream landowner and will not adversely affect flood risk, basin or channel stability, groundwater hydrology, stream baseflow, water quality or aquatic or riparian habitat.

☒ Rule Requirements Met

When evaluating existing versus proposed conditions, the volume increases at two discharge locations (BCT2 & BCT3). However, the discharge locations are attenuated by a vegetated swale along the Brown's Creek Trail which ultimately discharges to a wetland system northeast of McKusick Rd. As a result, there are no downstream impacts.

Rule 8.0—FEES

Fees for this project as outlined below:

1. Stormwater management fee	$3,100
2. Erosion control fee for grading	$1,500
3. Shoreline and streambank alterations fee	$NA
4. Stream and lake crossings fee	$NA
5. Floodplain and drainage alterations fee	$500
▪ **TOTAL FEES**	**$5,100**

Rule 9.0—FINANCIAL ASSURANCES

Financial assurances for this project are as outlined below:

1. Grading or Alteration (18.0 acres disturbed x $2,000/acre)	$36,000
2. Stormwater Management Facilities (125% of facility cost)	$TBD
▪ **TOTAL FINANCIAL ASSURANCES ($5,000 Minimum Performance Financial Assurance)**	$TBD

The BCWD engineer is currently waiting on the engineer's estimate provided by the applicant and will use this estimate to determine the required financial assurance.

Rule 9.0 Conditions:

9-1. Final estimate of stormwater facilities cost as agreed upon by applicant's engineer and BCWD engineer.

Rule 10.0—VARIANCES

According to BCWD Rule 10.0, the Board of Managers may hear requests for variances from the literal provisions of these Rules in instances where their strict enforcement would cause undue hardship because of the circumstances unique to the property under consideration. The Board of Managers may grant variances where it is demonstrated that such action will be keeping with the spirit and intent of these rules. Variance approval may be conditioned on an applicant's preventing or mitigating adverse impacts from the activity.

The Permit Applicant is requesting a variance to the following rules:

- Rule 2.4.1(a)(i) No increase in peak stormwater flow from the site, as compared with pre-settlement condition, for a 24-hour precipitation event with a return frequency of two, 10 or 100 years for all points where discharge leaves a site.

- Rule 2.4.1(a)(ii) No increase in stormwater flow volume from all points where discharge leaves a site, as compared with the pre-settlement condition, for a 24-hour precipitation event with a return frequency of two years.

The basis for the variance request and the Engineer's assessment of this request is addressed below for each rule requirement.

Rule 2.4.1(a)(i) Rate Control Requirement: There are a total of 17 discharge points from the site. The stormwater management plan meets the rule requirement of matching pre-settlement rate control at six (6) of these points. Therefore, 11 discharge points do not meet the pre-settlement rate control requirement. The permit applicant is requesting a variance from this rule requirement, arguing that the project largely preserves the existing land cover and does not substantially increase impervious area in the subcatchments. The increase in runoff from pre-settlement conditions is due to the fact that the existing vegetation does not perform as well as native vegetation in terms of capturing, slowing, and infiltrating stormwater runoff. The applicant has stated that meeting the pre-settlement rate control requirement would mean additional land disturbance from that which is currently proposed for the development. All 17 discharge points match or are less than the existing (pre-development) rates discharging from the site, as shown in Table 10 and Table 11 (note that an asterisk for proposed rates indicates the discharge does not meet the pre-settlement discharge rate).

Table 10 – Rate of discharge - north

Subcatchment Area [Pre-settlement / Post-development]	*Pre-development Runoff Rates [cfs]*			*Proposed Runoff Rates [cfs]*		
	2 yr (2.81″)	*10 yr (4.17″)*	*100 yr (7.23″)*	*2 yr (2.81″)*	*10 yr (4.17″)*	*100 yr (7.23″)*
Area 1A to West 1	0.04	0.11	0.29	0.04	0.10	0.28*
Area 1-1A to West 1*						
Area 1B to West 2	0.22	0.60	1.63	0.22	0.60	1.63
Area 1-1B to West 2*						
Area 6A & WL1 to BCT1	0.86	2.13	5.56	0.72	1.92	5.26
Area 6-1A & WL1 to BCT1*						
Area 6B to BCT2	2.37	5.78	14.97	1.66	3.74	13.08
Area 6-1B, C, D to BCT2						
Area 6C to BCT3	3.71	8.75	22.12	2.22	5.10	11.92
Area 6-2A, B, C to BCT3						
Area 6D to BCT4	1.80	3.66	8.54	1.12*	2.86*	7.65*
Area 6-3A to BCT4*						
Area 6E to BCT5	8.76	20.95	54.75	1.31	9.34	25.25
Area 6-3C & Basin 1 to BCT5						
Area 6F & WL9 to BCT6	2.33	7.30	56.51	0.96	5.49	28.79
Area 6-4A & WL9 to BCT6						
Area 6G, 12, 13 to BCT7*	1.66	4.12	10.81	1.62*	4.08*	10.77*
Area 6G, 12, 13 to BCT7*						
Wetland 24 to North Ditch	0	0	0.40	0	0	0.40

Table 11 – Rate of discharge - south

Subcatchment Area [Pre-settlement / Post-development]	*Pre-development Runoff Rates [cfs]*			*Proposed Runoff Rates [cfs]*		
	2 yr (2.81")	*10 yr (4.17")*	*100 yr (7.23")*	*2 yr (2.81")*	*10 yr (4.17")*	*100 yr (7.23")*
WL 33, 34A, 34B to S Ditch	0.12	1.97	17.72	0.03	0.42	5.80
WL 33, Basin 34-4, Area 34-5 to S Ditch						
Area 34-C to East 1	0.38	2.30	12.35	0	0.15	10.06
Area 34-1, Basin 34-2 to East 1						
Wetland 32 to East 2	0	0	6.83	0	0	5.41
Wetland 32 to East 2*						
Area 35A to West 3	0.17	0.67	2.28	0.17*	0.67*	2.28*
Area 35-1A to West 3*						
Area 35B to West 4	1.51	3.52	8.78	1.51*	3.52*	8.78*
Area 35-1B to West 4*						
Area 35C & WL 26 to West 5	1.00	2.32	5.80	1.00*	2.32*	5.80*
Area 35-1C & WL 26 to West 5*						
Area 36A, 36B to South 1	0.15	1.20	6.08	0.15*	1.20*	6.08*
Area 36-1, 36-2 to South 1*						

The rates from Basins 2 (subcatchment area Wetland 32 to East 2) and 4 (subcatchment area WL 33, Basin 34-4, Area 34-5 to S. Ditch) will actually be less than what is presented in Table 11 since stormwater reuse (for irrigation) has not been accounted for in the HydroCAD model.

The rule standard of setting peak rate and volume control at a pre-settlement level provides protection of sensitive high-value downstream resources (BCWD Rules SONAR, 2007). The implication of increasing stormwater discharge rate leaving the site is that it presents a higher risk of erosion which damages vegetation and carries sediment and pollutants to downstream resources. The flow paths and downstream resources at each location that do not meet the pre-settlement rate control standard are analyzed in Table 12.

Table 12 - Rate Control Variance Analysis

Subcatchment Area [Pre-settlement / Post-development]	*Pre-settlement Runoff Rates [cfs]*			*Proposed Runoff Rates [cfs]*		
	2 yr (2.81")	*10 yr (4.17")*	*100 yr (7.23")*	*2 yr (2.81")*	*10 yr (4.17")*	*100 yr (7.23")*
Area 1A to West 1 Area 1-1A to West 1*	0.04	0.10	0.27	0.04	0.10	**0.28***
Analysis: *Increase of 0.01 cfs for the 100-year event is within expected inherent error of model parameter inputs and calculation methods. Insignificant change in flow rate and within acceptable error for small watershed modeling and large volume events.*						
Area 6D to BCT4 Area 6-3A to BCT4*	1.03	2.73	7.48	**1.12***	**2.86***	**7.65***
Analysis: *Minor increase in flow rate from pre-settlement; flow rate is less than existing conditions. Discharges to gently sloping ditch along Brown's Creek Trail, thence into the McKusick Road ditch (3% slope). Enters wetland north of McKusick Road 1,800 feet away. Flow will experience significant attenuation due to nature of slope, vegetation, and length such that erosion and sediment deposition risk to the downstream resource is minimized in this case.*						
Area 6G, 12, 13 to BCT7* Area 6G, 12, 13 to BCT7*	1.42	3.78	10.33	**1.62***	**4.08***	**10.77***
Analysis: *Minor increase in flow rate from pre-settlement; flow rate is less than existing conditions. Discharges to heavily wooded ditch along Brown's Creek Trail, thence beneath the trail via 12" pipe, beneath McKusick Road, and into a large wetland categorized as a GDNR approximately 500 feet away. Flow will experience significant attenuation due to nature of slope, vegetation, length, and restrictive pipe such that erosion and sediment deposition risk to the downstream resource is minimized in this case.*						
Wetland 32 to East 2 Wetland 32 to East 2*	0	0	4.70	0	0	**5.41***
Analysis: *Increase in flow rate from pre-settlement for 100-year only; flow rate is less than existing conditions. Discharges to nearly flat open turf area before crossing beneath Brown's Creek Trail, McKusick Road, and to a small wetland located on private property 950 feet away. Flow will experience significant attenuation due to non-concentrated sheet flow across the open turf area and length of the flow path to the downstream resource such that erosion and sediment deposition risk to the downstream resource is minimized in this case.*						
Area 35A to West 3 Area 35-1A to West 3*	0.11	0.53	2.03	**0.17***	**0.67***	**2.28***
Analysis: *Minor increase in flow rate from pre-settlement; flow rate is less than existing conditions. Discharges to a small wetland complex which outlets back onto the project site approximately 500 feet away and to the north. Small, flat catchment area at 0.63 acres in size generating low volume and rates for all rain events, which proportions to low risk of erosion and sediment deposition. Flow will experience significant attenuation when entering the downstream wetland such that erosion and sediment deposition risk to the downstream resource is minimized in this case.*						

Subcatchment Area [Pre-settlement / Post-development]	*Pre-settlement Runoff Rates [cfs]*			*Proposed Runoff Rates [cfs]*		
	2 yr (2.81")	*10 yr (4.17")*	*100 yr (7.23")*	*2 yr (2.81")*	*10 yr (4.17")*	*100 yr (7.23")*
Area 35B to West 4 Area 35-1B to West 4*	1.08	2.88	7.89	**1.51***	**3.52***	**8.78***
Analysis: *Minor increase in flow rate from pre-settlement; flow rate is less than existing conditions. Wide flat swale discharges to a wooded depression located on private property before flowing to a wetland on an adjacent property approximately 550 feet away. Flow will experience significant attenuation by sheet flow across the wide flat swale, the woods, and the depression before entering the downstream wetland such that erosion and sediment deposition risk to the wooded area and downstream resource is minimized in this case.*						
Area 35C & WL 26 to West 5 Area 35-1C & WL 26 to West 5*	0.72	1.90	5.21	**1.00***	**2.32***	**5.80***
Analysis: *Minor increase in flow rate from pre-settlement; flow rate is less than existing conditions. Discharges to a small wetland complex which outlets back onto the project site approximately 250 feet away and to the south. Small, catchment area at 1.15 acres in size generating low volume and rates for all rain events, which proportions to low risk of erosion and sediment deposition. Flow will experience significant attenuation when entering the downstream wetland, thence further attenuated through the second wetland such that erosion and sediment deposition risk to the downstream resource is minimized in this case.*						
Area 36A, 36B to South 1	0.11	1.06	5.77	**0.15***	**1.20***	**6.08***
Analysis: *Very minor increase in flow rate from pre-settlement; flow rate is less than existing conditions. Discharges down a heavily wooded slope, onto a flat turf fairway on the neighboring golf course, thence through a wooded area to a wetland approximately 1,000 feet away. Small, gently sloping catchment area at 1.45 acres in size generating low volume and rates for all rain events, which proportions to low risk of erosion and sediment deposition. Flow will experience significant attenuation when entering the wooded area and flat turf fairway such that erosion and sediment deposition risk to the downstream resource is minimized in this case.*						

BCWD engineer finds that there is adequate technical basis to support the managers' granting a variance from the rate-control requirement as the findings in the above analysis conclude that meeting the existing conditions peak discharge rates, at these specific locations, is technically satisfactory to sufficiently protect downstream resources, and will not result in adverse impacts to downstream properties. Note that proposed values marked with an asterisk in Table 12 are higher than the pre-settlement discharge rate standard.

Rule 2.4.1(a)(ii) Volume Control Requirement: As previously stated, there are a total of 17 discharge points from the site. The stormwater management plan meets the rule requirement of matching pre-settlement runoff volumes for the 2-year, 24-hour event at six (6) of these points (West 2, BCT1, N 88th Ditch, East 1, East 2, West 5). This means that 11 discharge points do not meet the pre-settlement volume control requirement (West 1, BCT2, BCT3, BCT4, BCT5, BCT6, BCT7, S. 88th Ditch, West 3, West 4, South 1). The permit applicant is requesting a variance from this rule requirement since the volume at 14 of the discharge points match (or are lower than) the existing runoff volumes, as shown in Table 13, and that volume control to pre-settlement levels is provided for the site as a whole.

Rule Policy 2.1.1 is to preserve natural infiltration, groundwater recharge and subsurface flows that support groundwater dependent resources including lakes, streams, wetlands, plant communities, and drinking water supplies. According to the Memorandum Providing Background on and an Explanation of Amendments to the Brown's Creek Watershed District Rules (2018), among the 2016 BCWD Plan goals supported by this are to:

- Protect and maintain the quantity and quality of groundwater recharge, and
- Maintain or restore (where needed) pre-settlement recharge conditions in the watershed

These goals are met by the entire project site stormwater management plan meeting the pre-settlement standard.

The rule standard of setting peak rate and volume control at a pre-settlement level is meant to protect sensitive high-value downstream resources (BCWD Rules SONAR, 2007). The implications of increasing stormwater volume leaving a site at individual point locations are extending periods of saturation of soils along watercourses leading to erosion and sediment deposition, downcutting, disconnection from floodplain, as well as increasing flood risk to upstream and downstream resources and landowners (Rule 7.3.5). There are no watercourses being discharged to, and the ditch conveyances are fully stabilized and not susceptible to volume related erosion, therefore flood risk to upstream and downstream resources and landowners are the focuses of this variance analysis.

The applicant's variance request states that "Discharge volume increases over pre-settlement in areas where no impervious surface is proposed and volume control measures weren't feasible simply because the current landscape is not in a pre-settlement condition" and that "In drainage areas with development activity, some have increased volume and others have reduced volume depending on the suitability of the landscape for volume reduction practices." Two (2) discharge points have volumes that exceed the existing runoff volumes (BCT2, and BCT3) as outlined below.

- BCT2 - This discharge point collects drainage from three subcatchments including Area 6-1C, Area 6-1B and Area 6-1D. One of these subcatchments has new impervious coverage associated with the building pad as well as a rate control pond (Area 6-1B). A significant portion of the area is being converted to native vegetation; however, this area is downstream of the rate control pond where infiltration is infeasible due to soil conditions (Refer to Figure 3).
- BCT3 - This discharge point collects drainage from three subcatchments including Area 6-2B, 6-2C, and Area 6-2A. One of these subcatchments has new imperious coverage associated with the building pad. In addition, there are two rate control ponds in this drainage area that discharge to the native vegetation area (Refer to Figure 4).

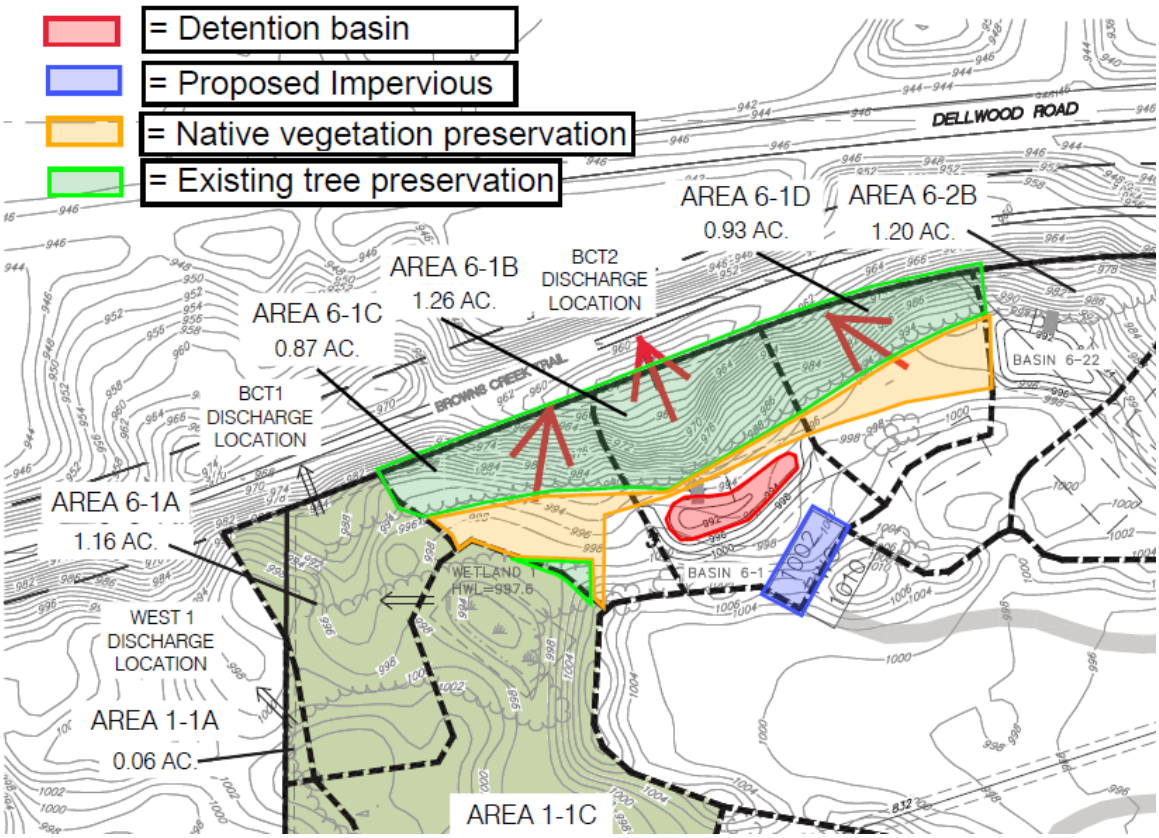


Figure 3 – Proposed discharge to BCT2

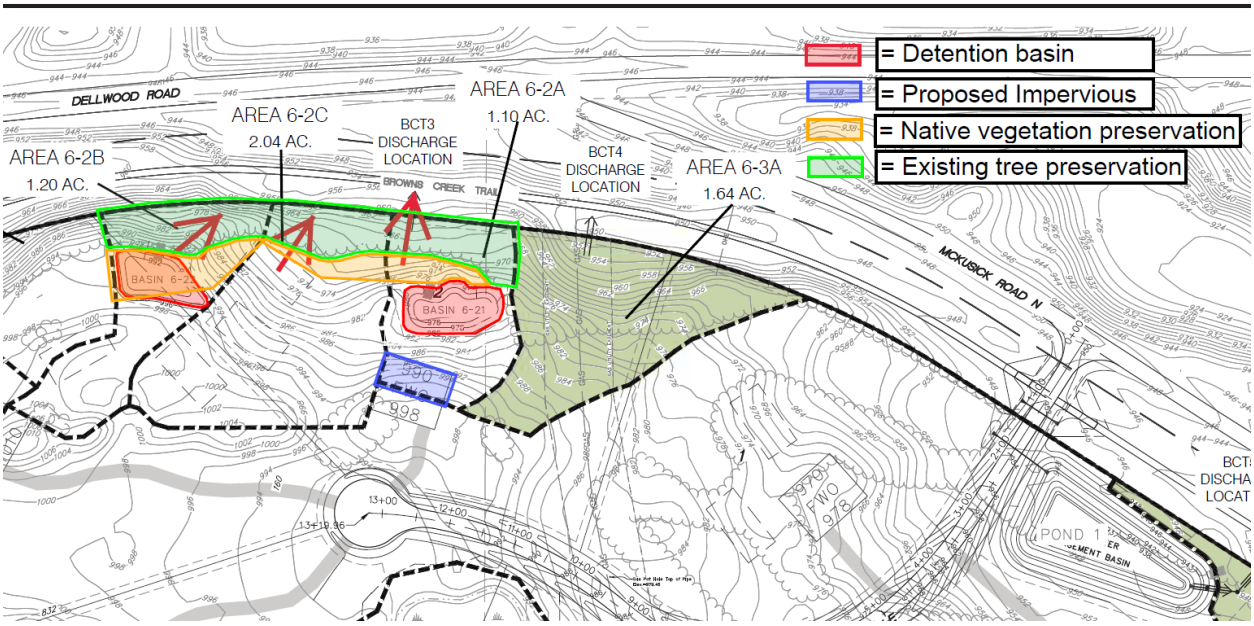


Figure 4 – Proposed discharge to the BCT3

Table 13 – Existing to Proposed 2-Year Discharge Volume Comparison

Discharge Point	Existing Runoff Volume [cf]	Proposed Runoff Volume [cf]	Difference [cf]	Volume Reduction Provided [cf]	Volume Change [cf]
West 1	155	142	-13	0	-13
West 2	799	799	0	0	0
SUB-TOTAL ***(discharges to private properties)***			***-13***	***0***	***-13***
BCT1	2,574	2,574	0	1,103	-1,103
BCT2	8,079	8,481	402	0	**402***
BCT3	12,455	13,658	1,203	0	**1,203***
BCT4	6,221	3,891	-2,330	0	-2,330
BCT5	32,225	53,721	21,496	27,205	-5,709
BCT6	16,803	22,479	5,676	11,795	-6,119
BCT7	5,718	5,588	-130	0	-130
SUB-TOTAL ***(discharges to Brown's Creek Trail)***			***26,317***	***40,103***	***-13,786***
N. 88th Ditch	0	0	0	749	-749
S. 88th Ditch	1,969	8,804	6,835	12,130	-1,357
SUB-TOTAL ***(discharges to south Mckusick ditch and across north to wetland complex.)***			***6,835***	**12,879**	***-2,106***
East 1	3,891	7,906	4,015	7,906	-3,891
East 2	0	0	0	10,784	-10,784
SUB-TOTAL ***(discharges to private property)***			***4,015***	***18,690***	***-14,675***
West 3	815	815	0	0	0
West 4	4,990	4,990	0	0	0
West 5	3,298	3,298	0	2,004	-2,004
SUB-TOTAL ***(discharges to private property)***			***0***	***2,004***	***-2,004***
South 1	1,298	1,298	0	0	0
SUB-TOTAL ***(discharges to private property)***			***0***	**0**	**0**
TOTAL FOR ENTIRE SITE			**37,167**	**73,676**	**-32584**

The subtotals shown in Table 13 indicate locations of common drainage to a downstream resource, e.g., wetland or property. The BCWD engineer finds that there is sufficient data and analysis to support the board's granting the variance from the volume control requirement since the stormwater management plan demonstrates that more volume control is being provided at each of the subtotaled discharge locations than what is currently happening under existing conditions. While two of the discharge points along the vegetated swale (conveyance system) along Brown's Creek State Trail are increasing in volume from existing conditions, there are multiple discharge points along the same conveyance system that discharge less than existing conditions, so that the net discharge at the most downstream end is less than existing conditions overall by 13,786 cubic feet. Given that the net volume being discharged to the vegetated swale is less than existing conditions, there will be no impact to the vegetated swale. Additionally, there will be no impact to the downstream wetland system (as articulated under Rule 2.0). As a result of these evaluations, the BCWD engineer supports the board's granting a variance to the volume control requirement in this instance. Further, the total volume being mitigated via stormwater infiltration, stormwater reuse and evapotranspiration is greater than the volume currently leaving the site in total which also meets the District's goals for groundwater recharge and runoff reduction.

RECOMMENDED CONDITIONS OF THE PERMIT:

The following is a summary of the remaining tasks necessary to bring the project into compliance with the BCWD Rules in all respects other than where variances are requested as discussed above:

1. Demonstrate that the plan has received preliminary plat approval (BCWD Rule 1.3a).
2. Address all stormwater management conditions (Conditions 2-1 to 2-6).
3. Address all erosion control conditions (Condition 3-1).
4. Address all buffer conditions (Condition 4-1 & 4-2).
5. Address all financial assurance requirements (Condition 9-1).
6. Replenish the Permit fee deposit to $5,100 ($52,551.38 Review Fees to Date + $5,100 = $57,651.38) (BCWD Rule 8.0). If the permit fee deposit is not replenished within 60 days of receiving notice that such deposit is due, the permit application or permit shall be deemed abandoned and all prior approvals shall be revoked and collection proceedings shall begin on unpaid balances.
7. Provide the required financial assurances (BCWD Rule 9.0):
    a. Total grading or alteration assurance 18.0 acres ($36,000).
    b. Stormwater management facilities assurance ($X).

STIPULATIONS OF APPROVAL:

1. Note that the permit, if issued, will require that the applicant notify the District in writing at least three business days prior to commencing land disturbance. (BCWD Rule 3.3.1)
2. To ensure that construction is carried out according to the approved plan, provide verification that construction standards have been met for all infiltration basins and pretreatment swales. This includes but is not limited to confirmation that infiltration basin sub-cut reaches soil material reflected in the geotechnical report and that the vegetation establishment procedures have been followed per the landscaping/restoration plan. This can be achieved by scheduling a BCWD inspection during the excavation of the basins,

independent geotechnical engineer observation and note of confirmation, or well-documented photographic evidence by the onsite engineer along with collected survey elevations of the basins.

3. Provide the District with As-built record drawings showing that the completed grading and stormwater facilities conform to the grading plan.

BROWN'S CREEK WATERSHED DISTRICT

455 HAYWARD AVE N
OAKDALE, MN
55128

651.330.8220 X26 [PHONE]
651.330.7747 [FAX]
WWW.BCWD.ORG

August 25, 2023

Kevin Corbid, Washington County Administrator & Washington County Commissioners
Washington County Government Center
14949 62nd Street North
Stillwater, MN, 55082

Dear Administrator Corbid & Commissioners;

Brown's Creek Watershed District has identified a project that will improve the trout stream habitat in Brown's Creek in Stillwater, which is currently listed as impaired for lack of cold water fish and macroinvertebrates.

BCWD has been working closely with Minnesota Department of Natural Resources (Waters, Fisheries, and Trails) and the city of Stillwater to identify opportunities to improve the trout stream habitat in Brown's Creek. A feasibility study shows restoring the existing 2,000 linear feet of Brown's Creek from McKusick Road just upstream of Brown's Creek Park to just downstream of the Brown's Creek State Trail would:

- Reduce bank erosion and subsequent sediment & nutrient loading to the creek and the St. Croix River
- Improve Habitat:
    - Rock riffles will increase fish spawning opportunities and provide stable refuge for macroinvertebrates
    - The project will increase the number and depth of pools that will in turn provide thermal refuge for aquatic biota during the summer months and provide overwintering habitat for fish and amphibians
    - Instream woody structure will provide fish and macroinvertebrate habitat and also protect streambanks from erosion.
    - Native seeding will increase pollinator habitat, diversity and extent of native vegetation over invasive species such as common buckthorn, reed canary grass, and garlic mustard.
    - Reconnected floodplain will improve wetland hydrology and help rehabilitate native riparian vegetation.
    - Establishment of brush piles and snag trees will provide refuge for a variety of non-game species such as small mammals, reptiles, and birds.
- Site access to the creek will include an ADA trail "spur" to create an access to Brown's Creek from the state trail.

This project is proposed to begin with tree and shrub removal in late 2023, stream restoration summer 2024, continued invasive species management fall 2024, replanting spring 2025. This timing takes into account the limitations for working in a trout stream and avoiding impacts to the Northern long-eared bat.

The enclosed preliminary design summary is provided pursuant to Minnesota Statutes section 103D.251, subdivision 2.

The estimated total cost for the project (including engineering and construction) is $534,500. The project will be funded through a watershed-wide ad valorem levy as authorized by Minnesota Statutes chapter 103B in the amount of $213,800 and a federal 319 grant administered through the Minnesota Pollution Control Agency in the amount of $320,700. Of the total project cost $430,100 will be used for construction and $104,400 for planning, design, engineering, permitting, and construction oversight.

The District will be holding a public hearing at Family Means (1875 Northwestern Ave, Stillwater) on September 13, 2023 at 6:30 pm to receive comments on this project.

Please feel free to contact me if you have any questions or comments on this project or other BCWD activities. I can be contacted at Karen.kill@mnwcd.org.

Best Regards,

Karen Kill, BCWD Administrator

Cc: Jessica Collins-Pilarski, Washington County Public Health and Environment – via email
Shawn Sanders & Andrew Coyne, City of Stillwater – via email

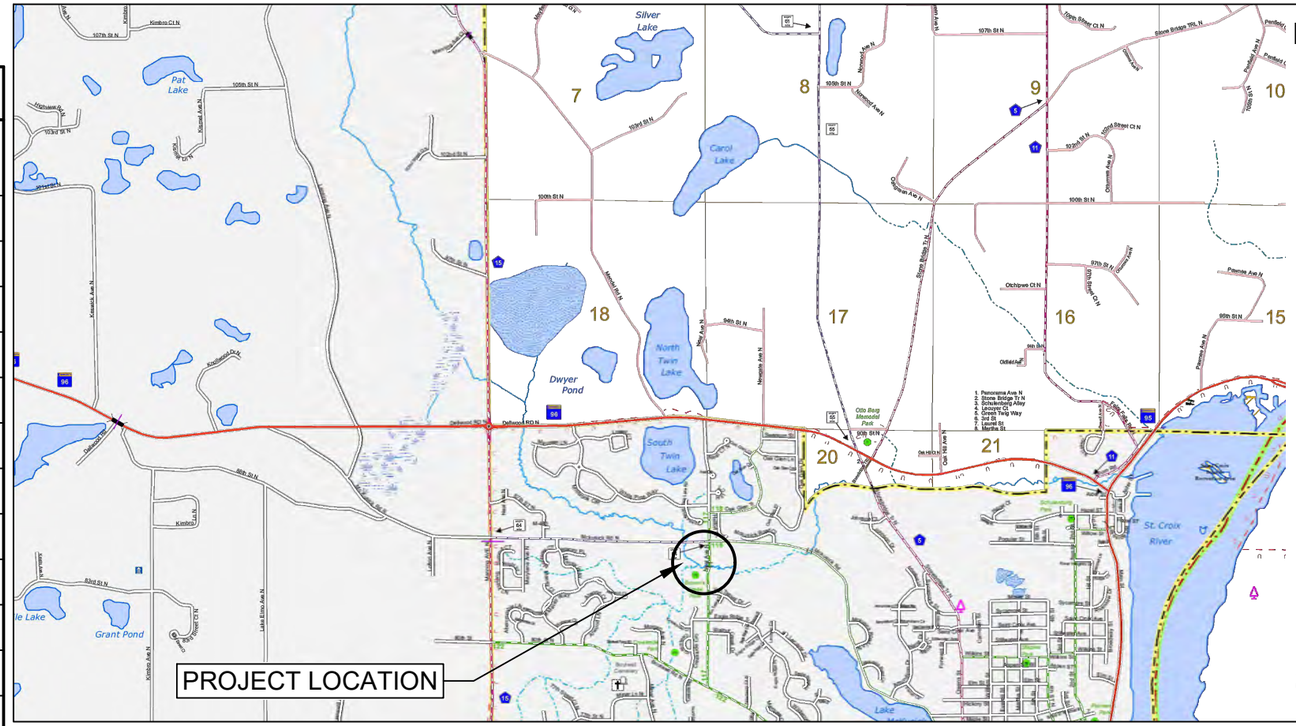
BROWN'S CREEK WATERSHED DISTRICT

BROWN'S CREEK PARK STREAM RESTORATION

WASHINGTON COUNTY, STILLWATER, MN

EXISTING CONDITIONS PLAN SET

Sheet List Table



PROJECT LOCATION, REFERENCE MAP

GENERAL NOTES

EXISTING UTILITIES

THE LOCATION OF UNDERGROUND FACILITIES AND/OR STRUCTURES AS SHOWN ON THE PLANS ARE BASED ON AVAILABLE RECORDS AT THE TIME THE PLANS WERE PREPARED AND ARE NOT GUARANTEED TO BE COMPLETE OR CORRECT.

THE SUBSURFACE UTILITY INFORMATION SHOWN IS UTILITY QUALITY LEVEL D, AS DETERMINED USING THE GUIDELINES OF "CI/ASCE 38-02 STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITIES 72 HOURS PRIOR TO CONSTRUCTION TO DETERMINE THE EXACT LOCATION OF ALL FACILITIES AND TO PROVIDE ADEQUATE PROTECTION OF SAID UTILITIES DURING THE COURSE OF WORK.

CONSTRUCTION NOTE

CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO MAINTAIN OPERATION OF EXISTING UTILITIES THROUGHOUT THE DURATION OF THE PROJECT. IN THE EVENT THAT AN INTERRUPTION OF SERVICE IS UNAVOIDABLE IN ORDER TO COMPLETE THE WORK, CONTRACTOR SHALL PROVIDE ADEQUATE NOTIFICATION TO ALL AFFECTED ENTITIES A MINIMUM OF 3 WORKING DAYS IN ADVANCE OF ANY INTERRUPTION.

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING FIELD MANUAL FOR TEMPORARY CONTROL ZONE LAYOUTS.

GOPHER STATE ONE-CALL

IT IS THE LAW THAT ANYONE EXCAVATING AT ANY SITE MUST NOTIFY GOPHER STATE ONE CALL (GSOC) SO THAT UNDERGROUND ELECTRIC, NATURAL GAS, TELEPHONE OR OTHER UTILITY LINES CAN BE MARKED ON OR NEAR YOUR PROPERTY BEFORE ANY DIGGING BEGINS. A 48-HOUR NOTICE, NOT INCLUDING WEEKENDS, IS REQUIRED. CALLS CAN BE MADE TO GSOC AT 1-800-252-1166 OR (651) 454-0002, MONDAY THROUGH FRIDAY (EXCEPT HOLIDAYS) FROM 7 A.M. TO 5 P.M.

water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: (651) 644-8080 WWW.EORINC.COM

NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
	2	
	3	
	4	
	5	
	6	

DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418 | CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK WATERSHED DISTRICT

BROWN'S CREEK PARK STREAM RESTORATION
WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

TITLE SHEET

SHEET 01 OF 19

BROWNS CREEK COVE HOMEOWNERS ASSOC INC
PROPOSED SITE ACCESS
PROPOSED STAGING AREA
MCKUSICK RD N
WASHINGTON COUNTY
WASHINGTON COUNTY
PROPOSED SOIL DISPOSAL AREA
CITY OF STILLWATER
CITY OF STILLWATER
CITY OF STILLWATER
NEAL AVE N
ROONEY PATRICK & JODY
BELTRAM H VAN TASSEL TRS
COUNTRYSIDE REPAIR INVESTMENTS LLC
MNDNR ANGLING EASEMENT
FLOW
BROWN'S CREEK STATE TRAIL
LIMITS OF DISTURBANCE
BROWN'S CREEK THALWEG
STATE OF MN DNR
STATE OF MN DNR
STATE OF MN DNR
PROPOSED SITE ACCESS
OAK GLEN LLC
CITY OF STILLWATER
CITY OF STILLWATER
BROWN'S CREEK PARK
VAN TASSEL DR

SCALE IN FEET
0 100 200 400
N

NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
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DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418 | CLIENT PROJECT #XXX-XXXX

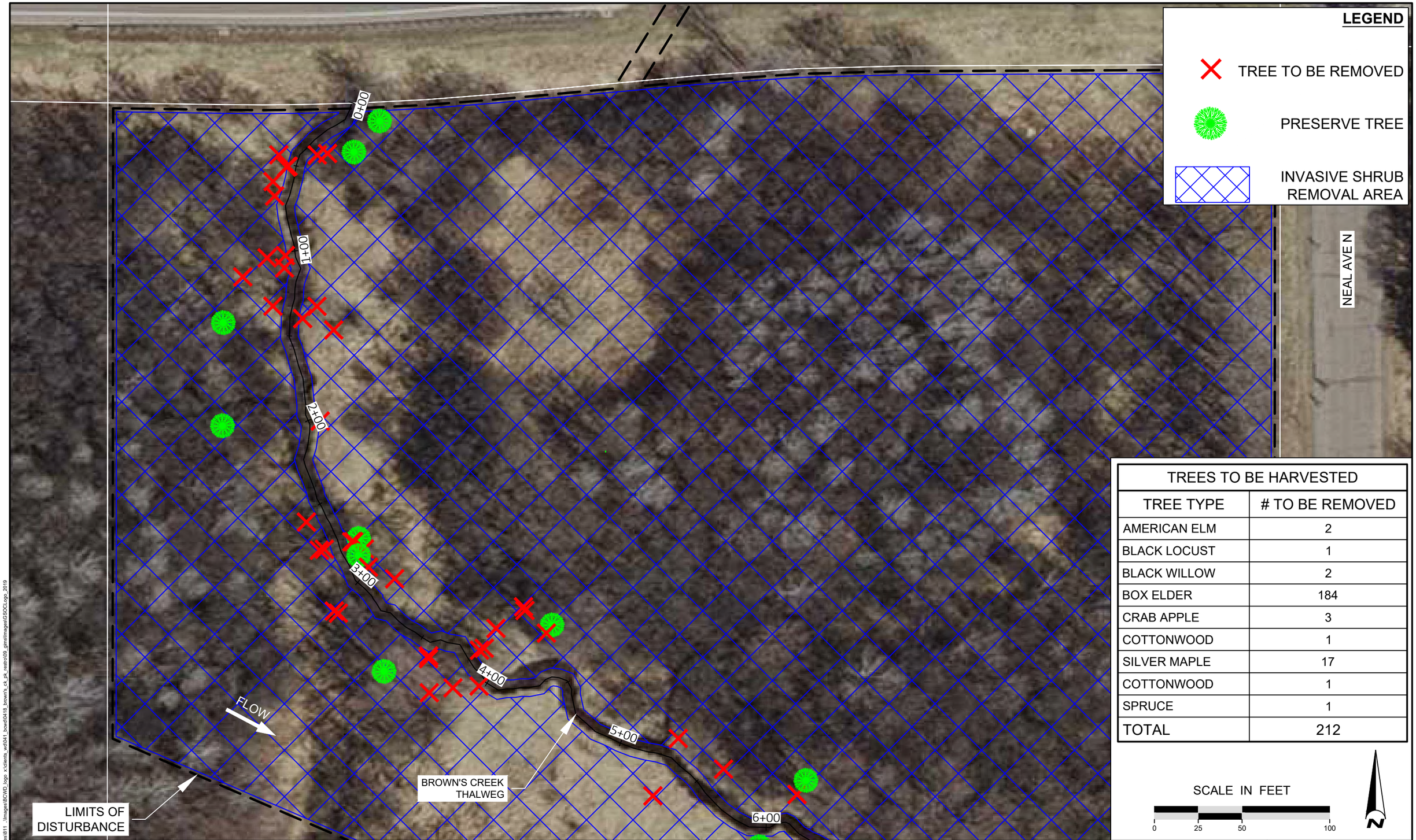
BROWN'S CREEK PARK STREAM RESTORATION
WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

PROJECT OVERVIEW

SHEET 02 OF 19

EOR water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: 651-770-8448



TREES TO BE HARVESTED	
TREE TYPE	# TO BE REMOVED
AMERICAN ELM	2
BLACK LOCUST	1
BLACK WILLOW	2
BOX ELDER	184
CRAB APPLE	3
COTTONWOOD	1
SILVER MAPLE	17
COTTONWOOD	1
SPRUCE	1
TOTAL	212

SCALE IN FEET

0 25 50 100

N

NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
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DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418

CLIENT PROJECT #XXX-XXXX

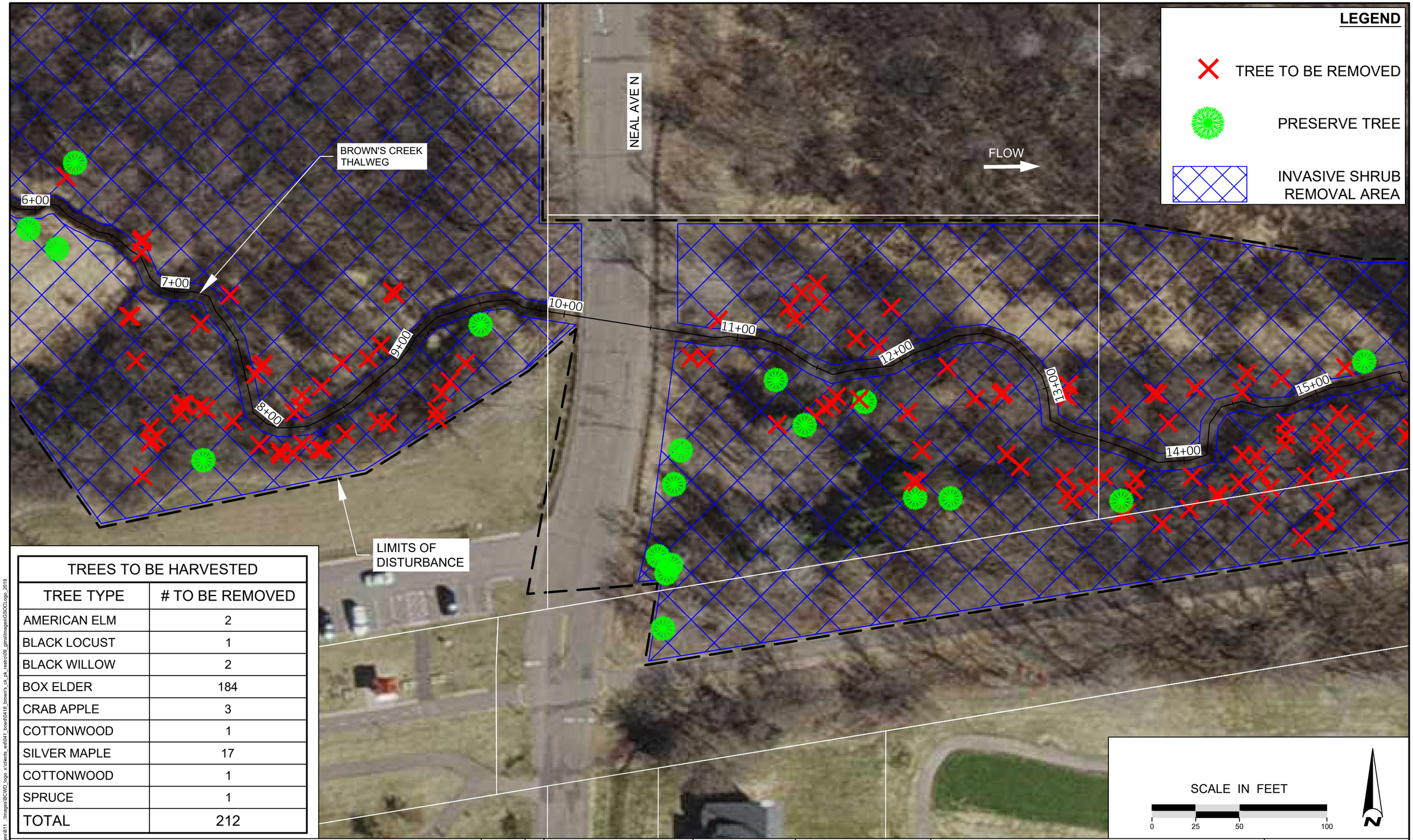
BROWN'S CREEK PARK STREAM RESTORATION
WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

TREE HARVEST PLAN 1

SHEET 03 OF 19

water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: 651.770.8448 FAX: 651.770.2552



TREES TO BE HARVESTED	
TREE TYPE	# TO BE REMOVED
AMERICAN ELM	2
BLACK LOCUST	1
BLACK WILLOW	2
BOX ELDER	184
CRAB APPLE	3
COTTONWOOD	1
SILVER MAPLE	17
COTTONWOOD	1
SPRUCE	1
TOTAL	212

water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: 651-770-8448 FAX: 651-770-2552

NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
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DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418 | CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK WATERSHED DISTRICT

BROWN'S CREEK PARK STREAM RESTORATION

WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

TREE HARVEST PLAN 2

SHEET 04 OF 19

Plot Date: 06/30/2023
Drawing name: X:\Clients_WD\041_BCWD\0418_Brown's_Ck_Pk_Restr\09_GIMS\dwg\0041_0418-CD.dwg
Xrefs: 40041_0418-SURFACE
40041_0418-PBASE
40041_0418-TOPO
40041_0418-LBASE ; Images: ..\Images\811 ..\Images\BCWD_logo x:\clients_wd\041_bcwd\0418_brown's_ck_pk_restr\09_gims\Images\GSOCLogo_2019

TREES TO BE HARVESTED	
TREE TYPE	# TO BE REMOVED
AMERICAN ELM	2
BLACK LOCUST	1
BLACK WILLOW	2
BOX ELDER	184
CRAB APPLE	3
COTTONWOOD	1
SILVER MAPLE	17
COTTONWOOD	1
SPRUCE	1
TOTAL	212

SCALE IN FEET

0 25 50 100

N

water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL 651.770.8448 FAX 651.770.2552

NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
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DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418

BROWN'S CREEK WATERSHED DISTRICT

CLIENT PROJECT #XXX-XXXX

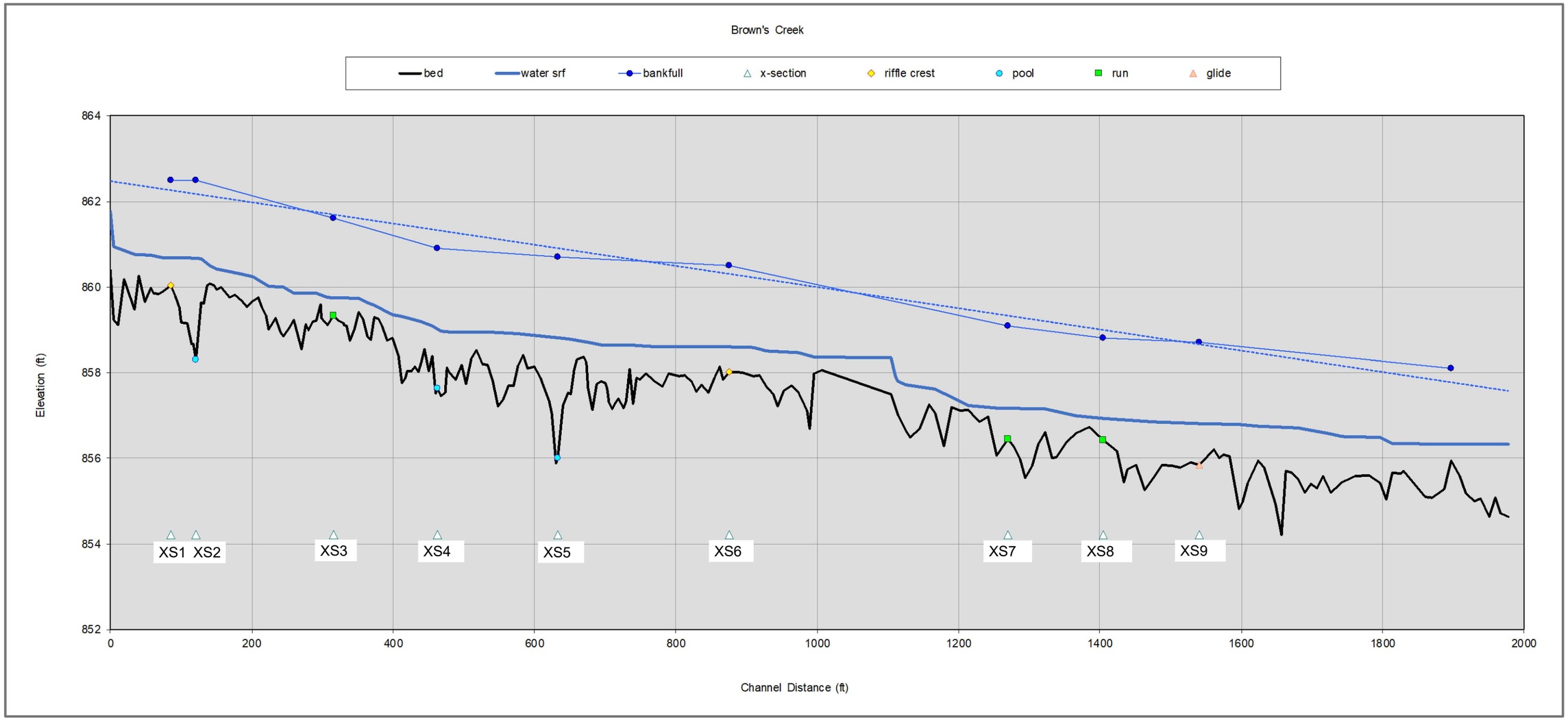
BROWN'S CREEK PARK STREAM RESTORATION
WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

TREE HARVEST PLAN 3

SHEET 05 OF 19

AVERAGE REACH SLOPE = 0.28%



NOTE:
STREAM AND WATER PROFILE SURVEYED ON DECEMBER 2, 2022

water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: 651-770-8448 FAX: 651-770-2552

NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
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	4	
	5	
	6	

DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418 | CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK WATERSHED DISTRICT

BROWN'S CREEK PARK STREAM RESTORATION
WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

EXISTING STREAM PROFILE

SHEET 06 OF 19

Plot Date: 06/30/2023
Drawing name: X:\Clients_WD\0041_BCWD\0418_Brown's_Ck_Pk_Restro\09_GIMS\dwg\0041_0418-CD.dwg
Xrefs: 40041_0418-SURFACE
40041_0418-PBASE
40041_0418-TOPO
40041_0418-LBASE | Images: ..\Images\811 ..\Images\BCWD_logo x:\clients_wd\0041_bcwd\0418_brown's_ck_pk_restro\09_gims\Images\GSOCLogo_2019

18" RCP
INV: 864.07

PRESERVE
SILVER MAPLE
- 16"

PRESERVE
SILVER MAPLE
- 12"

72" ARCH RCP
INV: 860.40

0+00

WASHINGTON
COUNTY

MCKUSICK RD N

XS
1

XS
2

18" RCP
INV: 865.05

STORM SEWER
(TYP)

1+00

2+00

WETLAND
SEEPAGE

PRESERVE
PAPER BIRCH
- 5"

WETLAND
SEEPAGE

PRESERVE
PAPER BIRCH
- 5"

LIMITS OF
DISTURBANCE

CITY OF
STILLWATER

CITY OF
STILLWATER

PRESERVE
BLACK WILLOW
- 30"

PRESERVE
CHERRY
- 7"

XS
3

3+00

WETLAND
SEEPAGE

FLOW

PRESERVE
SILVER MAPLE
- 36"

PRESERVE
SILVER MAPLE
- 26"

XS
4

4+00

5+00

SPRING

WETLAND
SEEPAGE

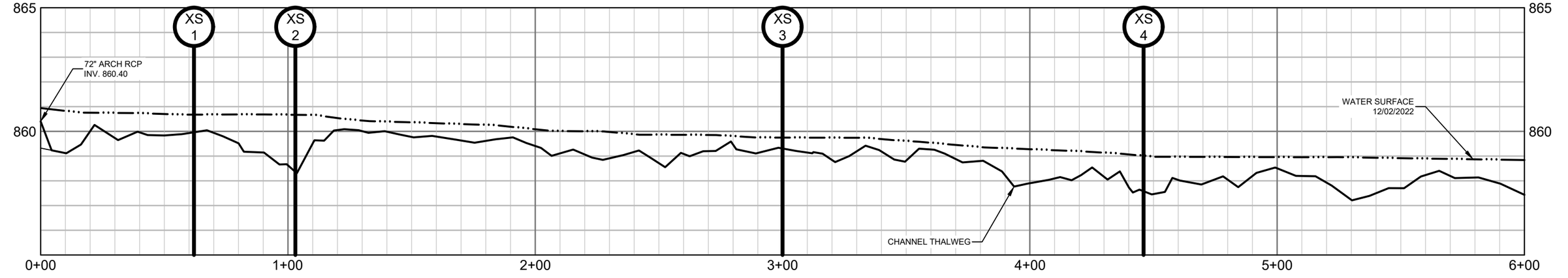
6+00

PRESERVE
TAMARACK
- 5"

BROWN'S CREEK
EXISTING THALWEG

SCALE IN FEET

0 20 40 80



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DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418 | CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK PARK STREAM RESTORATION
WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

EXISTING CONDITIONS
PLAN & PROFILE - 1

SHEET 07 OF 19

water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: (651) 770-8448 FAX: (651) 770-2552

PRESERVE SILVER MAPLE - 12"

WETLAND SEEPAGE

FLOW

8' X 12' BOX CULVERT INV: 857.98

ROONEY PATRICK & JODY

LIMITS OF DISTURBANCE

EXISTING SIDEWALK

6+00

WETLAND SEEPAGE

SPRING

CITY OF STILLWATER

WETLAND SEEPAGE

NEAL AVE N

8' X 12' BOX CULVERT INV: 857.49

STATE OF MN DNR

XS 7

PRESERVE TAMARCK - 7"

7+00

10+00

BROWN'S CREEK EXISTING THALWEG

XS 5

TRIBUTARY

9+00

11+00

12+00

18" CMP INV: 862.89

SEEPAGE

PRESERVE BLACK WILLOW - 9"

8+00

XS 6

PRESERVE COTTONWOOD - 15"

WATER LINE (TYP)

SEEPAGE

PRESERVE BLACK WALNUT - 4"

PRESERVE CHERRY - 10"

PRESERVE BUR OAK - 14"

EXISTING ROCK CRIB

PRESERVE CHERRY - 9"

EXISTING WOODEN POST

PRESERVE BLACK WALNUT - 6"

PARKING LOT

SANITARY SEWER (TYP)

PRESERVE (3) ASPENS

SCALE IN FEET

0 20 40 80

N

XS 5

XS 6

WATER SURFACE 12/02/2022

8' X 12' BOX CULVERT

860

855

CHANNEL THALWEG

8' X 12' BOX CULVERT INV. 857.98

8' X 12' BOX CULVERT INV. 857.49

6+00 7+00 8+00 9+00 10+00 11+00 12+00

NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
	2	
	3	
	4	
	5	
	6	

DESIGNED BY: EOR

DRAWN BY: DEM

CHECKED BY:MJM

EOR JOB #0041-0418

CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK PARK STREAM RESTORATION

WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

EXISTING CONDITIONS PLAN & PROFILE - 2

SHEET 08 OF 19

water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: 651-770-8448 FAX: 651-770-2552

STATE OF MN DNR

BROWN'S CREEK EXISTING THALWEG

XS 7

XS 8

XS 9

FLOW

BELTRAM H VAN TASSEL TRS

PRESERVE SILVER MAPLE - 14"

PRESERVE SILVER MAPLE - 60"

PRESERVE SILVER MAPLE - 60"

LIMITS OF DISTURBANCE

EXISTING RUBBLE PILE

PRESERVE SILVER MAPLE - 8"

PRESERVE SILVER MAPLE - 9"

PRESERVE SILVER MAPLE - 48"

COUNTRYSIDE REPAIR INVESTMENTS LLC

EXISTING OUTFALL

PRESERVE SILVER MAPLE - 16"

EXISTING FENCE

PRESERVE BLACK WILLOW - 10"

EXISTING FENCE

EXISTING WOODEN POST

PRESERVE AMERICAN ELM - 7"

PRESERVE CHERRY - 7"

PRESERVE DOWN WILLOW - 40"

STATE OF MN DNR

BROWN'S CREEK STATE TRAIL

SANITARY SEWER (TYP)

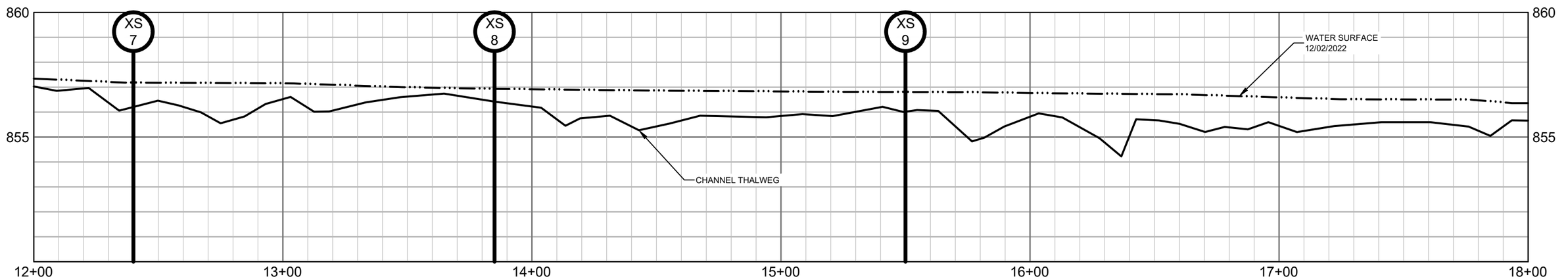
STORM SEWER (TYP)

12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00

SCALE IN FEET

0 20 40 80

N



NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
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	3	
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DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM
EOR JOB #0041-0418

CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK PARK STREAM RESTORATION
WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

EXISTING CONDITIONS PLAN & PROFILE - 3

SHEET 09 OF 19

water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: 651-770-8448 FAX: 651-770-2552

BROWN'S CREEK EXISTING THALWEG

XS 8

14+00

15+00

16+00

17+00

18+00

19+00

19+57

FLOW

COUNTRYSIDE REPAIR INVESTMENTS LLC

C/L SWALE

EXISTING OUTFALL

BROWN'S CREEK STATE TRAIL

72" ARCH RCP
INV: 855.70

72" CMP FLOODPLAIN CULVERT
INV: 857.01

EXISTING FENCE

72" ARCH RCP
INV: 855.10

72" CMP FLOODPLAIN CULVERT
INV: 856.53

PRESERVE
BLACK WILLOW
- 30"

GOLF CART PATH

36" CMP BULKHEAD
INV: 858.40

STORM SEWER
(TYP)

SANITARY SEWER
(TYP)

LIMITS OF DISTURBANCE

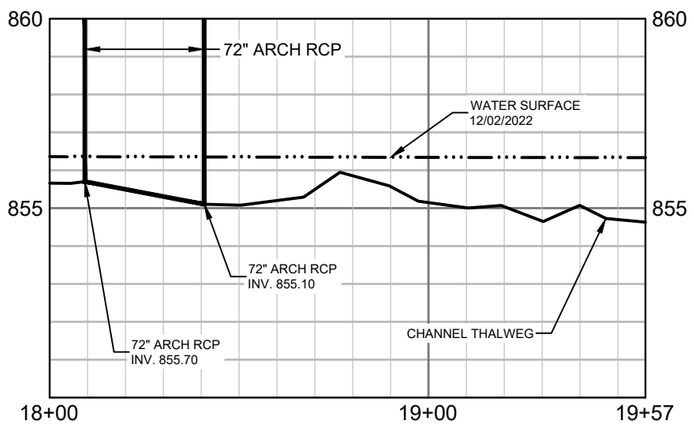
PRESERVE
(3) GREEN ASH

OAK GLEN LLC

SCALE IN FEET

0 20 40 80

N



water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: (651) 644-8080 FAX: (651) 644-8997

NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
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DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418

BROWN'S CREEK WATERSHED DISTRICT

CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK PARK STREAM RESTORATION

WASHINGTON COUNTY, STILLWATER, MN

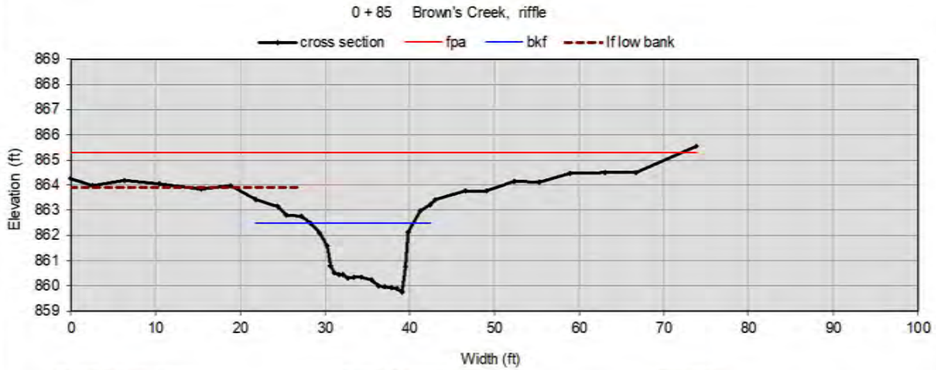
BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

EXISTING CONDITIONS PLAN & PROFILE - 4

SHEET 10 OF 19

Plot Date: 06/30/2023
Drawing name: X:\Clients_WD\0041_BCWD\0418_Brown's_Ck_Pk_Restro\09_GIMS\dwg\0041_0418-CD.dwg
Xrefs: 4041_0418-SURFACE
4041_0418-XBASE
4041_0418-PROPOSED
4041_0418-LBASE ; Images: ..\Images\811 ..\Images\BCWD_logo x:\clients_wd\0041_bcwd\0418_brown's_ck_pk_restro\09_gims\Images\GSOCLogo_2019

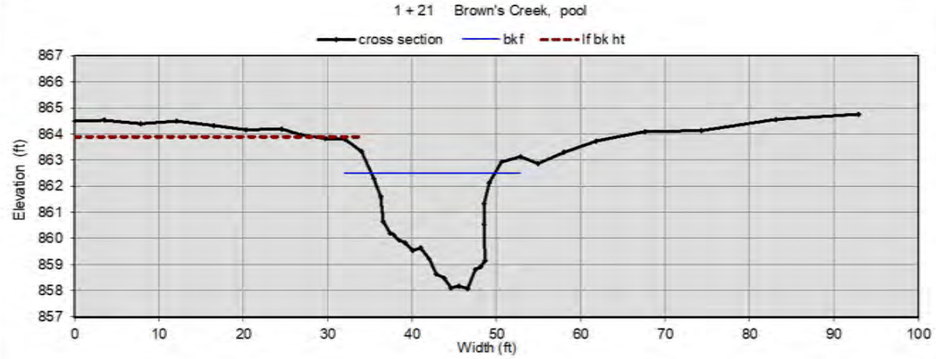
Cross Section XS1



Bankfull Dimensions		Flood Dimensions		Materials	
22.2	x-section area (ft.sq.)	207.0	W flood prone area (ft)	9.8	D50 Riffle (mm)
12.2	width (ft)	17.0	entrenchment ratio	20	D84 Riffle (mm)
1.8	mean depth (ft)	4.2	low bank height (ft)	13	threshold grain size (mm):
2.8	max depth (ft)	1.5	low bank height ratio		
14.9	wetted parimeter (ft)				
1.5	hyd radi (ft)				
6.7	width-depth ratio				

Bankfull Flow		Flow Resistance		Forces & Power	
4.1	velocity (ft/s)	0.025	Manning's roughness	0.28	channel slope (%)
90.7	discharge rate (cfs)	0.06	D'Arcy-Weisbach fric.	0.26	shear stress (lb/sq.ft.)
0.59	Froude number	11.2	resistance factor u/u*	0.37	shear velocity (ft/s)
		27.8	relative roughness	1.3	unit strm power (lb/ft/s)

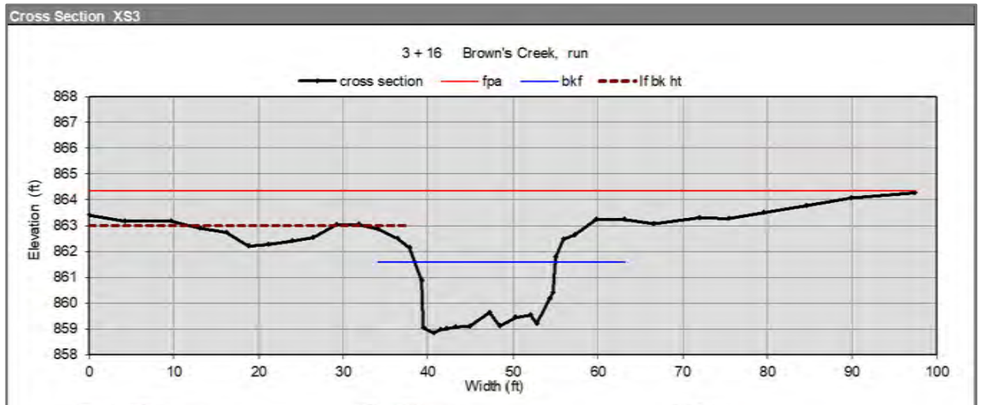
Cross Section XS2



Bankfull Dimensions		Flood Dimensions		Materials	
42.2	x-section area (ft.sq.)	---	W flood prone area (ft)	9.8	D50 Riffle (mm)
14.6	width (ft)	---	entrenchment ratio	20	D84 Riffle (mm)
2.9	mean depth (ft)	5.8	low bank height (ft)	19	threshold grain size (mm):
4.4	max depth (ft)	1.3	low bank height ratio		
19.3	wetted parimeter (ft)				
2.2	hyd radi (ft)				
5.0	width-depth ratio				

Bankfull Flow		Flow Resistance		Forces & Power	
5.4	velocity (ft/s)	0.025	Manning's roughness	0.28	channel slope (%)
228.7	discharge rate (cfs)	0.05	D'Arcy-Weisbach fric.	0.38	shear stress (lb/sq.ft.)
0.64	Froude number	12.2	resistance factor u/u*	0.44	shear velocity (ft/s)
		44.2	relative roughness	2.7	unit strm power (lb/ft/s)

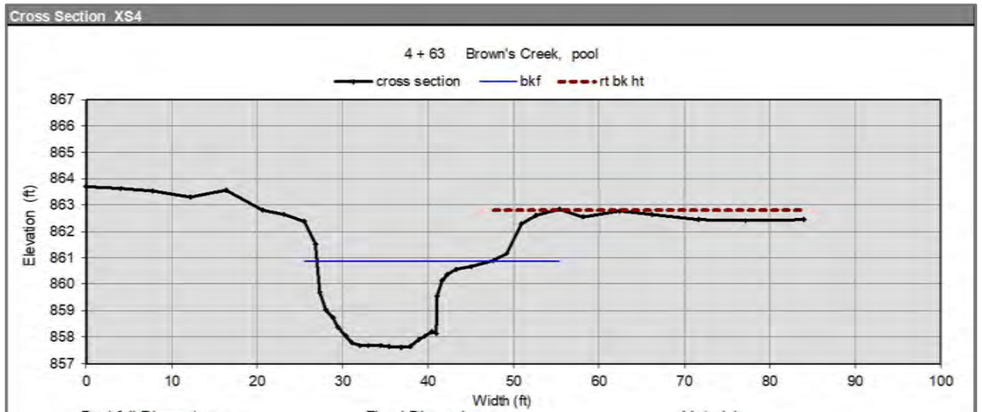
Cross Section XS3



Bankfull Dimensions		Flood Dimensions		Materials	
36.1	x-section area (ft.sq.)	144.0	W flood prone area (ft)	9.8	D50 Riffle (mm)
16.5	width (ft)	8.7	entrenchment ratio	20	D84 Riffle (mm)
2.2	mean depth (ft)	4.2	low bank height (ft)	15	threshold grain size (mm):
2.8	max depth (ft)	1.5	low bank height ratio		
20.1	wetted parimeter (ft)				
1.8	hyd radi (ft)				
7.6	width-depth ratio				

Bankfull Flow		Flow Resistance		Forces & Power	
4.6	velocity (ft/s)	0.025	Manning's roughness	0.28	channel slope (%)
166.3	discharge rate (cfs)	0.06	D'Arcy-Weisbach fric.	0.31	shear stress (lb/sq.ft.)
0.61	Froude number	11.5	resistance factor u/u*	0.40	shear velocity (ft/s)
		33.2	relative roughness	1.76	unit strm power (lb/ft/s)

Cross Section XS4



Bankfull Dimensions		Flood Dimensions		Materials	
42.3	x-section area (ft.sq.)	---	W flood prone area (ft)	9.8	D50 Riffle (mm)
20.6	width (ft)	---	entrenchment ratio	20	D84 Riffle (mm)
2.1	mean depth (ft)	5.2	low bank height (ft)	15	threshold grain size (mm):
3.3	max depth (ft)	1.6	low bank height ratio		
23.8	wetted parimeter (ft)				
1.8	hyd radi (ft)				
10.1	width-depth ratio				

Bankfull Flow		Flow Resistance		Forces & Power	
4.6	velocity (ft/s)	0.025	Manning's roughness	0.28	channel slope (%)
196.8	discharge rate (cfs)	0.06	D'Arcy-Weisbach fric.	0.31	shear stress (lb/sq.ft.)
0.61	Froude number	11.6	resistance factor u/u*	0.40	shear velocity (ft/s)
		31.3	relative roughness	1.67	unit strm power (lb/ft/s)

NOTE:

ALL CROSS SECTIONS ARE ORIENTED DOWNSTREAM W/ RIVER LEFT ON THE LEFT AND RIVER RIGHT ON THE RIGHT.

water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: 651-770-8448 FAX: 651-770-2552

NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
	2	
	3	
	4	
	5	
	6	

DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418 | CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK WATERSHED DISTRICT

BROWN'S CREEK PARK STREAM RESTORATION

WASHINGTON COUNTY, STILLWATER, MN

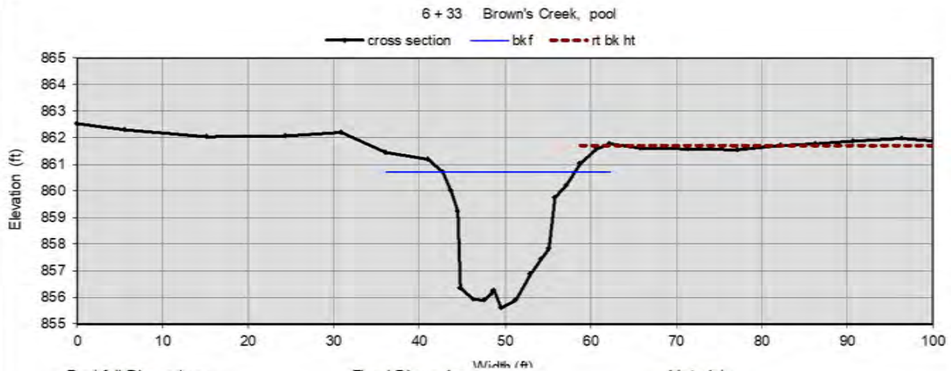
BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

EXISTING CROSS SECTIONS - 1

SHEET 11 OF 19

Plot Date: 06/30/2023
Drawing name: X:\Clients_WD\0041_BCWD\0418_Brown's_Ck_Pk_Restro\09_GIMS\dwg\0041_0418-CD.dwg
Xrefs: 4041_0418-SURFACE
4041_0418-BASE
4041_0418-SURFACE
4041_0418-LBASE: ..\images\..\images\811 ..\Images\BCWD_logo x:\clients_wd\0041_bcwd\0418_brown's_ck_pk_restro\09_gims\Images\GSOCLogo_2019

Cross Section XS5



Bankfull Dimensions		Flood Dimensions		Materials	
49.6	x-section area (ft.sq.)	---	W flood prone area (ft)	9.8	D50 Riffle (mm)
15.3	width (ft)	---	entrenchment ratio	20	D84 Riffle (mm)
3.2	mean depth (ft)	6.1	low bank height (ft)	20	threshold grain size (mm):
5.1	max depth (ft)	1.2	low bank height ratio		
20.8	wetted parimeter (ft)				
2.4	hyd radi (ft)				
4.7	width-depth ratio				

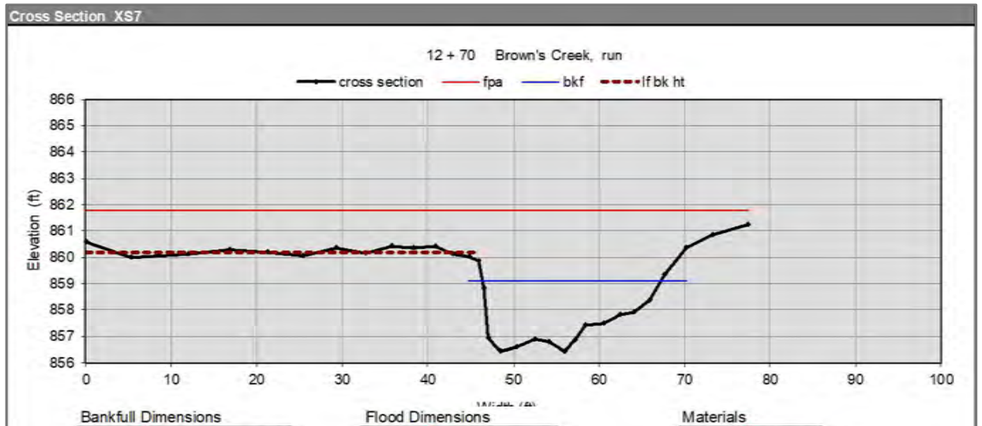
Bankfull Flow		Flow Resistance		Forces & Power	
5.8	velocity (ft/s)	0.024	Manning's roughness	0.28	channel slope (%)
286.2	discharge rate (cfs)	0.05	D'Arcy-Weisbach fric.	0.42	shear stress (lb/sq.ft.)
0.66	Froude number	12.4	resistance factor u/u*	0.46	shear velocity (ft/s)
		49.3	relative roughness	3.3	unit strm power (lb/ft/s)

Cross Section XS6

Bankfull Dimensions		Flood Dimensions		Materials	
47.8	x-section area (ft.sq.)	152.0	W flood prone area (ft)	9.8	D50 Riffle (mm)
26.9	width (ft)	5.6	entrenchment ratio	20	D84 Riffle (mm)
1.8	mean depth (ft)	3.8	low bank height (ft)	14	threshold grain size (mm):
2.7	max depth (ft)	1.4	low bank height ratio		
28.3	wetted parimeter (ft)				
1.7	hyd radi (ft)				
15.2	width-depth ratio				

Bankfull Flow		Flow Resistance		Forces & Power	
4.4	velocity (ft/s)	0.025	Manning's roughness	0.28	channel slope (%)
211.3	discharge rate (cfs)	0.06	D'Arcy-Weisbach fric.	0.29	shear stress (lb/sq.ft.)
0.60	Froude number	11.4	resistance factor u/u*	0.39	shear velocity (ft/s)
		27.0	relative roughness	1.37	unit strm power (lb/ft/s)

Cross Section XS7



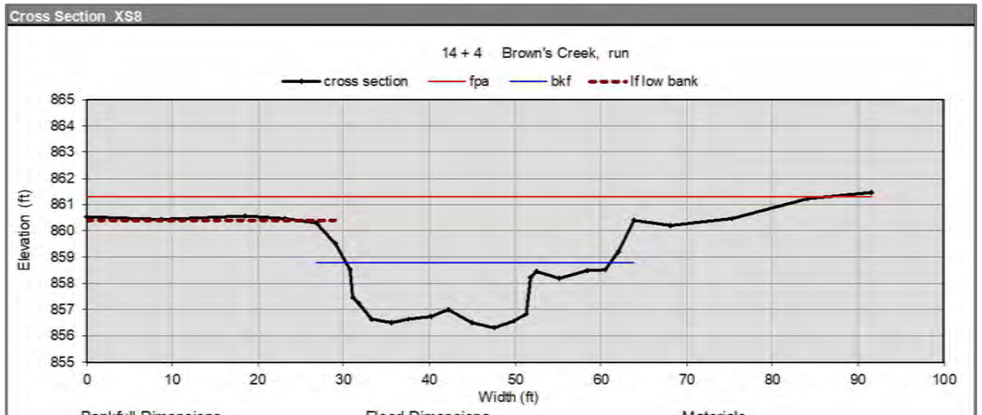
Bankfull Dimensions		Flood Dimensions		Materials	
38.0	x-section area (ft.sq.)	275.0	W flood prone area (ft)	9.8	D50 Riffle (mm)
20.8	width (ft)	13.2	entrenchment ratio	20	D84 Riffle (mm)
1.8	mean depth (ft)	3.8	low bank height (ft)	6	threshold grain size (mm):
2.7	max depth (ft)	1.4	low bank height ratio		
23.1	wetted parimeter (ft)				
1.6	hyd radi (ft)				
11.4	width-depth ratio				

Bankfull Flow		Flow Resistance		Forces & Power	
2.9	velocity (ft/s)	0.025	Manning's roughness	0.12	channel slope (%)
108.5	discharge rate (cfs)	0.06	D'Arcy-Weisbach fric.	0.12	shear stress (lb/sq.ft.)
0.39	Froude number	11.3	resistance factor u/u*	0.25	shear velocity (ft/s)
		27.9	relative roughness	0.39	unit strm power (lb/ft/s)

NOTE:

ALL CROSS SECTIONS ARE ORIENTED DOWNSTREAM W/ RIVER LEFT ON THE LEFT AND RIVER RIGHT ON THE RIGHT.

Cross Section XS8



Bankfull Dimensions		Flood Dimensions		Materials	
47.9	x-section area (ft.sq.)	225.0	W flood prone area (ft)	9.8	D50 Riffle (mm)
30.9	width (ft)	7.3	entrenchment ratio	20	D84 Riffle (mm)
1.6	mean depth (ft)	4.1	low bank height (ft)	5	threshold grain size (mm):
2.5	max depth (ft)	1.6	low bank height ratio		
33.1	wetted parimeter (ft)				
1.4	hyd radi (ft)				
19.9	width-depth ratio				

Bankfull Flow		Flow Resistance		Forces & Power	
2.6	velocity (ft/s)	0.025	Manning's roughness	0.12	channel slope (%)
125.1	discharge rate (cfs)	0.07	D'Arcy-Weisbach fric.	0.11	shear stress (lb/sq.ft.)
0.38	Froude number	11.0	resistance factor u/u*	0.24	shear velocity (ft/s)
		23.7	relative roughness	0.3	unit strm power (lb/ft/s)

EOR water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: 651-770-8448 www.eorinc.com

NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
	2	
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DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418

BROWN'S CREEK WATERSHED DISTRICT

CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK PARK STREAM RESTORATION

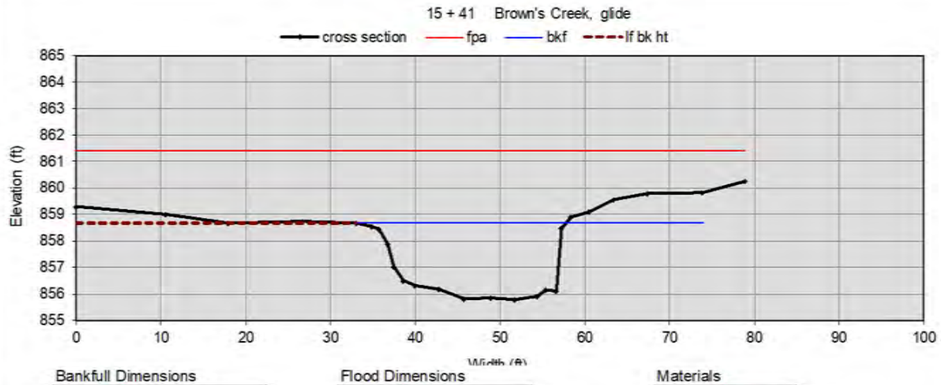
WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

EXISTING CROSS SECTIONS - 2

SHEET 12 OF 19

Cross Section XS9



Bankfull Dimensions		Flood Dimensions		Materials	
53.2	x-section area (ft.sq.)	225.0	W flood prone area (ft)	9.8	D50 Riffle (mm)
24.8	width (ft)	9.1	entrenchment ratio	20	D84 Riffle (mm)
2.1	mean depth (ft)	2.9	low bank height (ft)	7	threshold grain size (mm):
2.9	max depth (ft)	1.0	low bank height ratio		
27.4	wetted parimeter (ft)				
1.9	hyd radi (ft)				
11.5	width-depth ratio				

Bankfull Flow		Flow Resistance		Forces & Power	
3.2	velocity (ft/s)	0.025	Manning's roughness	0.12	channel slope (%)
169.9	discharge rate (cfs)	0.06	D'Arcy-Weisbach fric.	0.15	shear stress (lb/sq.ft.)
0.40	Froude number	11.7	resistance factor u/u*	0.27	shear velocity (ft/s)
		32.7	relative roughness	0.51	unit strm power (lb/ft/s)

NOTE:

ALL CROSS SECTIONS ARE ORIENTED DOWNSTREAM W/ RIVER LEFT ON THE LEFT AND RIVER RIGHT ON THE RIGHT.

water ecology community
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TEL: 651-770-8448 FAX: 651-770-2552

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DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
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DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418

BROWN'S CREEK WATERSHED DISTRICT

CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK PARK STREAM RESTORATION

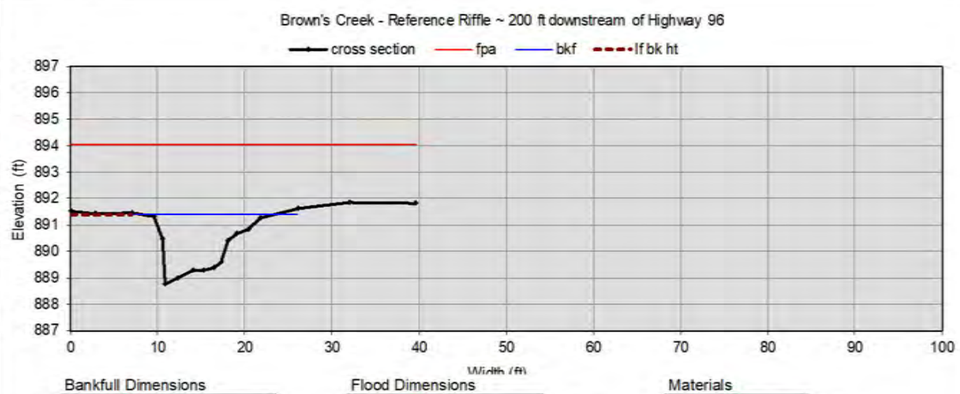
WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

EXISTING CROSS SECTIONS - 3

SHEET 13 OF 19

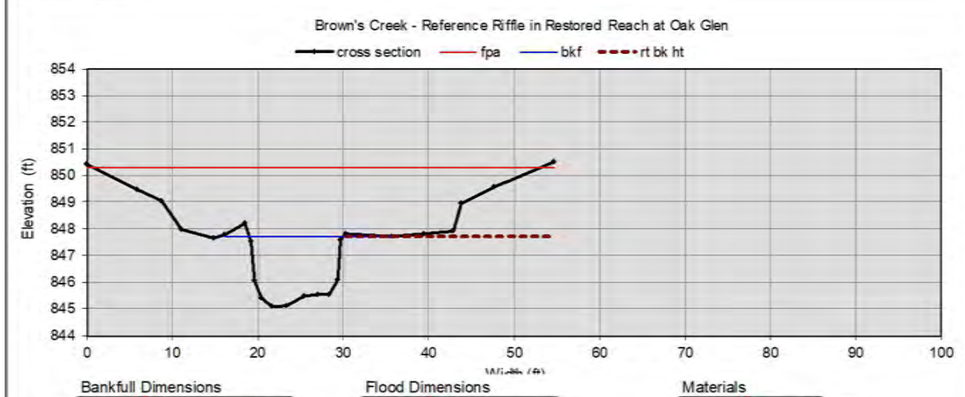
Cross Section Ref 1



Bankfull Dimensions		Flood Dimensions		Materials	
18.9	x-section area (ft.sq.)	198.0	W flood prone area (ft)	9.8	D50 Riffle (mm)
15.4	width (ft)	12.9	entrenchment ratio	20	D84 Riffle (mm)
1.2	mean depth (ft)	2.7	low bank height (ft)	12	threshold grain size (mm):
2.7	max depth (ft)	1.0	low bank height ratio		
17.7	wetted parimeter (ft)				
1.1	hyd radi (ft)				
12.5	width-depth ratio				

Bankfull Flow		Flow Resistance		Forces & Power	
3.8	velocity (ft/s)	0.025	Manning's roughness	0.38	channel slope (%)
72.0	discharge rate (cfs)	0.07	D'Arcy-Weisbach fric.	0.25	shear stress (lb/sq.ft.)
0.65	Froude number	10.6	resistance factor u/u*	0.36	shear velocity (ft/s)
		18.7	relative roughness	1.11	unit strm power (lb/ft/s)

Cross Section Ref 2



Bankfull Dimensions		Flood Dimensions		Materials	
23.0	x-section area (ft.sq.)	52.7	W flood prone area (ft)	9.8	D50 Riffle (mm)
10.9	width (ft)	4.8	entrenchment ratio	20	D84 Riffle (mm)
2.1	mean depth (ft)	2.6	low bank height (ft)	12	threshold grain size (mm):
2.6	max depth (ft)	1.0	low bank height ratio		
13.8	wetted parimeter (ft)				
1.7	hyd radi (ft)				
5.2	width-depth ratio				

Bankfull Flow		Flow Resistance		Forces & Power	
4.0	velocity (ft/s)	0.025	Manning's roughness	0.235	channel slope (%)
92.4	discharge rate (cfs)	0.06	D'Arcy-Weisbach fric.	0.24	shear stress (lb/sq.ft.)
0.55	Froude number	11.3	resistance factor u/u*	0.35	shear velocity (ft/s)
		32.1	relative roughness	1.24	unit strm power (lb/ft/s)

NOTE:

ALL CROSS SECTIONS ARE ORIENTED DOWNSTREAM W/ RIVER LEFT ON THE LEFT AND RIVER RIGHT ON THE RIGHT.

water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: (651) 644-1268 FAX: (651) 644-1445

NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
	2	
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DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418

BROWN'S CREEK WATERSHED DISTRICT

CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK PARK STREAM RESTORATION

WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

REFERENCE CROSS SECTIONS

SHEET 14 OF 19

Plot Date: 06/30/2023
Drawing name: X:\Clients_WD\041_BCWD\0418_Brown's_Ck_Pk_Restro\09_GIMS\dwg\0041_0418-CD.dwg
Xrefs: 40041_0418-SURFACE
40041_0418-BASE
40041_0418-PROP
40041_0418-LBASE; Images: ..\Images\811 ..\Images\BCWD_logo x:\clients_wd\041_bcwd\0418_brown's_ck_pk_restro\09_gims\images\GSOCLogo_2019

FLOW

PROPOSED STAGING AREA

PROPOSED SITE ACCESS

CITY OF STILLWATER

WASHINGTON COUNTY

MCKUSICK RD N

18" RCP INV: 864.07

72" ARCH RCP INV: 860.40

18" RCP INV: 865.05

PRESERVE SILVER MAPLE - 16"

PRESERVE SILVER MAPLE - 12"

PRESERVE SILVER MAPLE - 26"

PRESERVE CHERRY - 7"

PRESERVE PAPER BIRCH - 5"

PRESERVE PAPER BIRCH - 5"

PRESERVE BLACK WILLOW - 30"

PRESERVE SILVER MAPLE - 36"

XS 1

XS 2

XS 3

XS 4

0+00

1+00

2+00

3+00

4+00

5+00

6+00

7+00

STA 0+00 - 0+70 VEGETATED BOULDER TOE

STA 0+00 - 0+40 VEGETATED BOULDER TOE

STA 0+70 - 1+20 BANK SHAPING

STA 0+40 - 1+20 TOEWOOD

STA 1+20 - 1+60 BRUSH/LOG TOE

STA 1+20 - 1+60 BANK SHAPING

STA 1+60 - 1+80 BRUSH/LOG TOE

STA 1+60 - 1+80 BANK SHAPING

STA 1+80 - 2+60 BRUSH/LOG TOE

STA 1+80 - 2+20 BANK SHAPING

STA 2+60 - 3+20 BANK SHAPING

STA 2+20 - 3+20 BRUSH/LOG TOE

STA 3+20 - 3+80 BRUSH/LOG TOE

STA 3+20 - 3+80 BANK SHAPING

STA 3+80 - 4+10 BANK SHAPING

STA 3+80 - 4+20 BRUSH/LOG TOE

STA 4+10 - 5+00 BRUSH/LOG TOE

STA 4+20 - 4+90 BANK SHAPING

STA 4+90 - 5+60 BRUSH/LOG TOE

STA 5+00 - 5+50 BANK SHAPING

STA 5+50 - 6+20 BRUSH/LOG TOE

STA 5+60 - 6+10 BANK SHAPING

INSTALL CHANNEL PLUG WITH BRUSH TOE & SOD MATS

INSTALL CHANNEL PLUG WITH BRUSH TOE & SOD MATS

INSTALL CHANNEL PLUG WITH BRUSH TOE & SOD MATS

INSTALL CHANNEL PLUG WITH BRUSH TOE & SOD MATS

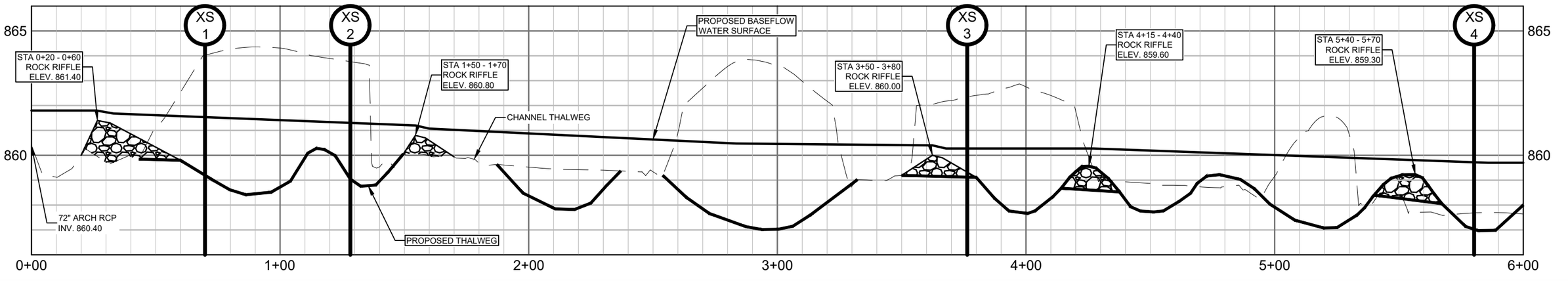
INSTALL CHANNEL PLUG WITH BRUSH TOE & SOD MATS

BROWN'S CREEK PROPOSED THALWEG

LIMITS OF DISTURBANCE

SCALE IN FEET

0 20 40 80



water ecology community

EMMONS & OLIVIER RESOURCES, INC.

1919 UNIV. AVE. W. #300 ST. PAUL, MN

TEL: 651.770.8448 FAX: 651.770.2552

NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
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DESIGNED BY: EOR

DRAWN BY: DEM

CHECKED BY:MJM

EOR JOB #0041-0418

BROWN'S CREEK WATERSHED DISTRICT

CLIENT PROJECT #XXX-XXXX

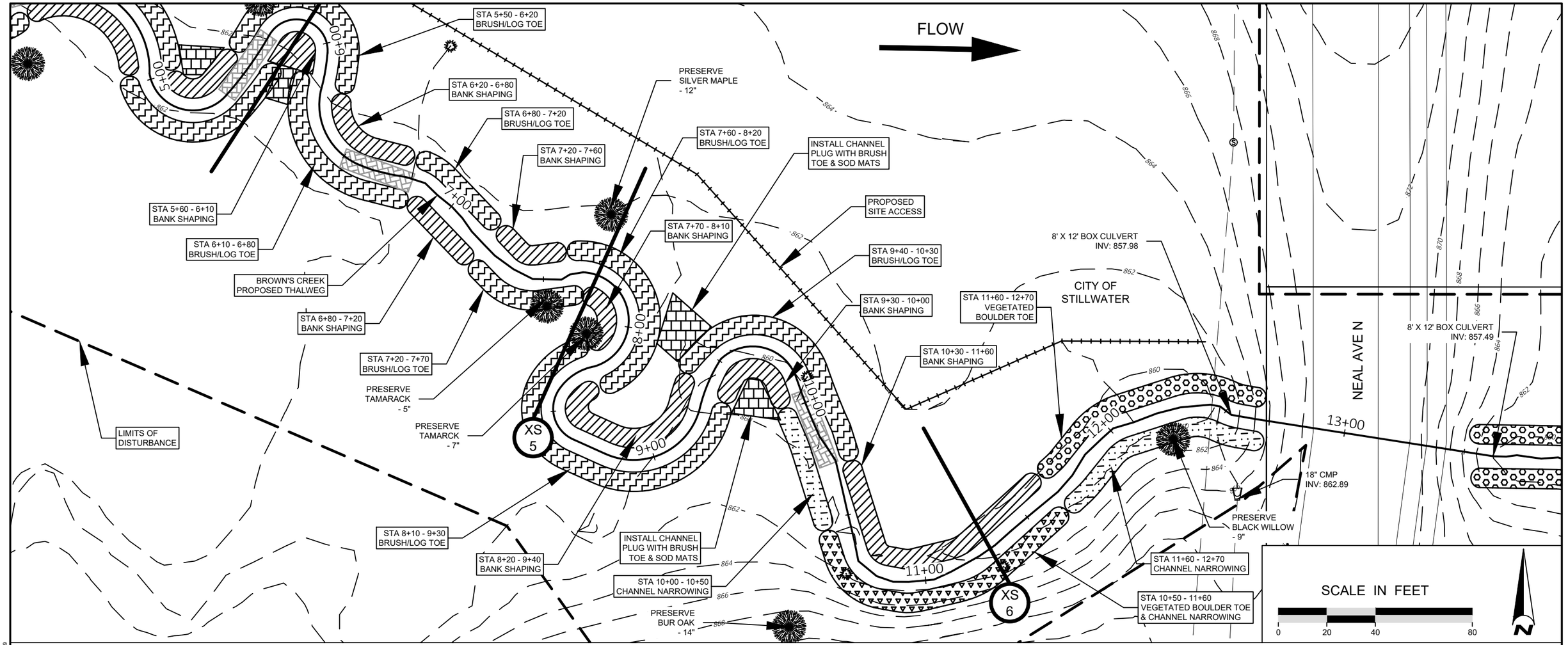
BROWN'S CREEK PARK STREAM RESTORATION

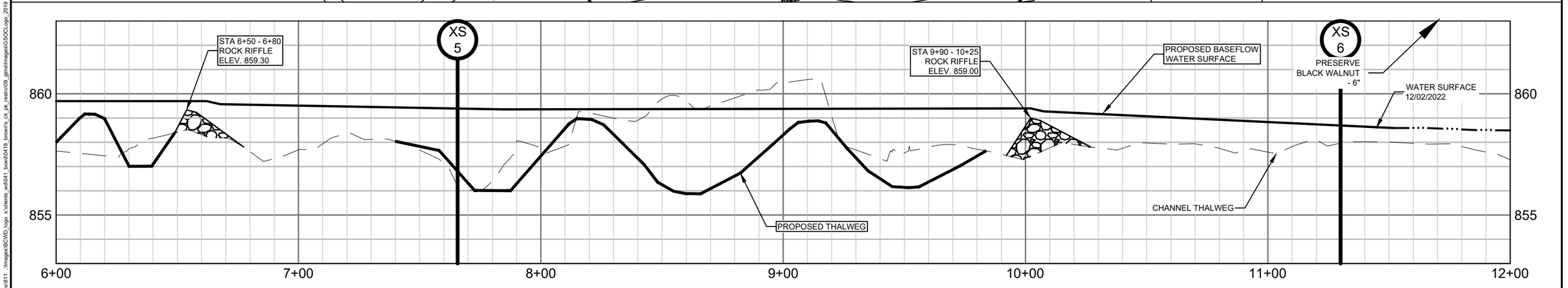
WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

PROPOSED PLAN & PROFILE - 1

SHEET 15 OF 19





NOT FOR CONSTRUCTION

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
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DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418

CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK PARK
STREAM RESTORATION
WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

PROPOSED PLAN & PROFILE - 2

SHEET 16 OF 19

water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: 651-770-8448

CITY OF STILLWATER

STATE OF MN DNR

STATE OF MN DNR

BELTRAM H VAN TASSEL TRS

BROWN'S CREEK STATE TRAIL

STA 11+40 - 12+50 VEGETATED BOULDER TOE

BROWN'S CREEK PROPOSED THALWEG

STA 13+50 - 14+30 VEGETATED BOULDER TOE

STA 14+30 - 15+00 CHANNEL NARROWING

STA 15+00 - 15+50 BRUSH/LOG TOE

STA 15+00 - 16+20 CHANNEL NARROWING

STA 15+50 - 16+20 TOEWOOD

STA 15+70 - 17+70 RECONNECT OXBOW CHANNEL

INSTALL CHANNEL PLUG

STA 17+40 - 18+00 TOEWOOD

LIMITS OF DISTURBANCE

FLOW

REMOVE WOODEN POST

STA 13+50 - 14+30 VEGETATED BOULDER TOE

PRESERVE COTTONWOOD - 15"

PRESERVE CHERRY - 9"

PRESERVE CHERRY - 10"

STA 14+30 - 15+00 BRUSH/LOG TOE

STA 16+20 - 17+10 BANK SHAPING

STA 11+40 - 12+50 CHANNEL NARROWING

PRESERVE BLACK WALNUT - 4"

PRESERVE BLACK WALNUT - 6"

PRESERVE (3) ASPENS

PRESERVE ASPEN - 14"

PROPOSED SITE ACCESS

PRESERVE AMERICAN ELM - 7"

PRESERVE CHERRY - 7"

STA 17+10 - 17+40 BRUSH/LOG TOE

STA 16+20 - 17+20 TOEWOOD

STA 17+20 - 18+00 CHANNEL NARROWING

PRESERVE DOWN WILLOW - 40"

XS 6

XS 7

XS 8

XS 9

12+00

13+00

14+00

15+00

16+00

17+00

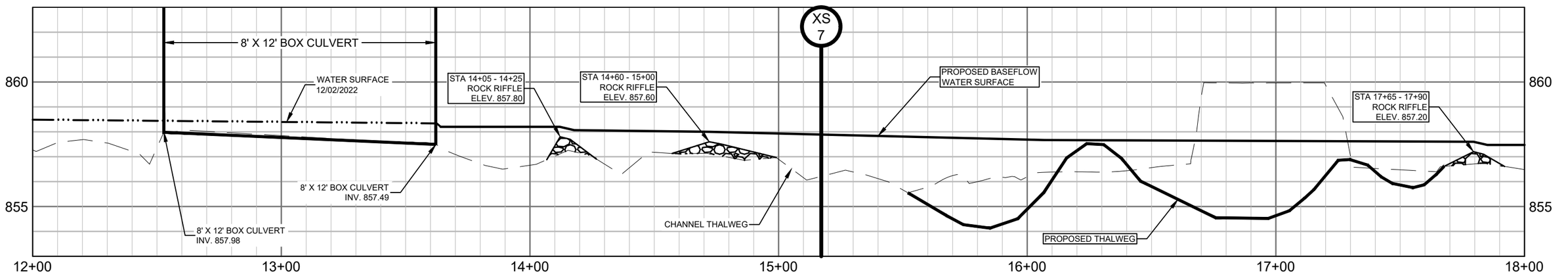
18+00

19+00

20+00

SCALE IN FEET

0 20 40 80



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DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418

CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK PARK STREAM RESTORATION

WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

PROPOSED PLAN & PROFILE - 3

SHEET 17 OF 19

water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: (651) 770-8448 FAX: (651) 770-2552

BELTRAM H VAN TASSEL TRS

COUNTRYSIDE REPAIR INVESTMENTS LLC

STATE OF MN DNR

BROWN'S CREEK STATE TRAIL

BROWN'S CREEK PROPOSED THALWEG

PROPOSED SITE ACCESS

FLOW

XS 8

XS 9

STA 18+00 - 18+40 BRUSH/LOG TOE

STA 18+00 - 18+40 CHANNEL NARROWING

STA 18+40 - 18+70 BRUSH/LOG TOE

STA 18+40 - 19+30 CHANNEL NARROWING

STA 18+70 - 19+30 TOEWOOD

INSTALL CHANNEL PLUG

STA 19+30 - 19+80 TOEWOOD

STA 18+50 - 20+50 RECONNECT OXBOW CHANNEL

STA 19+30 - 20+40 BANK SHAPING

STA 19+80 - 20+50 BRUSH/LOG TOE

STA 20+40 - 21+00 TOEWOOD

STA 20+50 - 21+00 CHANNEL NARROWING

STA 21+00 - 21+70 BRUSH/LOG TOE

STA 21+00 - 21+70 CHANNEL NARROWING

STA 21+70 - 23+40 CHANNEL NARROWING

STA 21+70 - 23+40 VEGETATED BOULDER TOE

STA 23+70 - 24+10 BANK SHAPING

STA 23+70 - 24+20 VEGETATED BOULDER TOE

72" CMP FLOODPLAIN CULVERT INV: 857.01

72" CMP FLOODPLAIN CULVERT INV: 856.53

36" CMP BULKHEAD INV: 858.40

72" ARCH RCP INV: 855.70

72" ARCH RCP INV: 855.10

PRESERVE SILVER MAPLE - 14"

PRESERVE SILVER MAPLE - 60"

PRESERVE SILVER MAPLE - 8"

PRESERVE SILVER MAPLE - 9"

PRESERVE SILVER MAPLE - 48"

PRESERVE SILVER MAPLE - 16"

PRESERVE BLACK WILLOW - 10"

PRESERVE BLACK WILLOW - 30"

LIMITS OF DISTURBANCE

C/L SWALE

EXISTING OUTFALL

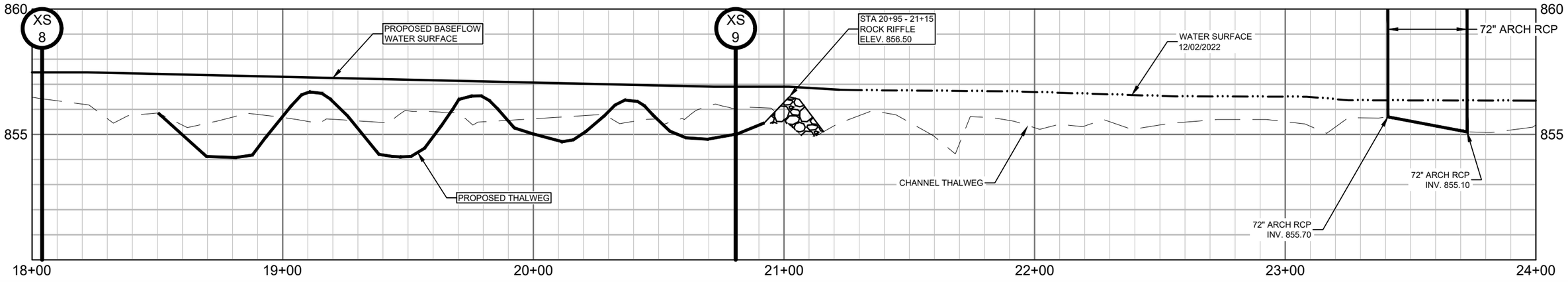
EXISTING FENCE

16+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

SCALE IN FEET

0 20 40 80

N



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DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418

CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK PARK STREAM RESTORATION

WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

PROPOSED PLAN & PROFILE - 4

SHEET 18 OF 19

water ecology community
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: 651-770-8448 WWW.EORINC.COM

BROWN'S CREEK PROPOSED THALWEG

COUNTRYSIDE REPAIR INVESTMENTS LLC

EXISTING OUTFALL

C/L SWALE

BROWN'S CREEK STATE TRAIL

XS 8

19+00

20+00

21+00

22+00

23+00

72" ARCH RCP
INV: 855.70

72" CMP FLOODPLAIN CULVERT
INV: 857.01

FLOW

EXISTING FENCE

72" ARCH RCP
INV: 855.10

24+00

STA 23+70 - 24+20
VEGETATED
BOULDER TOE

GOLF CART PATH

PROPOSED SITE ACCESS

72" CMP FLOODPLAIN CULVERT
INV: 856.53

STA 23+70 - 24+10
BANK SHAPING

STA 24+20 - 24+90
CHANNEL NARROWING

24+89

36" CMP BULKHEAD
INV: 858.40

LIMITS OF DISTURBANCE

PRESERVE
(3) GREEN ASH

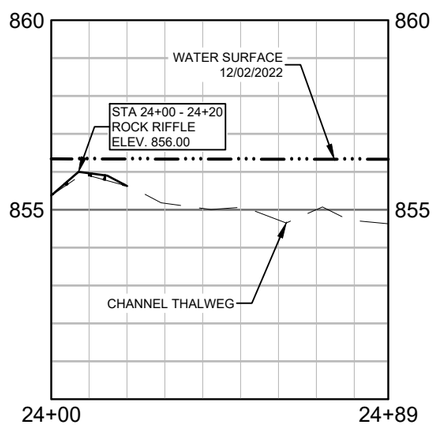
STA 24+10 - 24+90
VEGETATED
BOULDER TOE

OAK GLEN LLC

SCALE IN FEET

0 20 40 80

N



NOT FOR CONSTRUCTION

EMMONS & OLIVIER RESOURCES, INC.
1919 UNIV. AVE. W. #300 ST. PAUL, MN
TEL: 651.770.8448 FAX: 651.770.2552

DATE	NO.	DESCRIPTION
06/30/2023	1	30% DESIGN PLAN SET
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	3	
	4	
	5	
	6	

DESIGNED BY: EOR
DRAWN BY: DEM
CHECKED BY:MJM

EOR JOB #0041-0418 | CLIENT PROJECT #XXX-XXXX

BROWN'S CREEK PARK STREAM RESTORATION
WASHINGTON COUNTY, STILLWATER, MN

BROWN'S CREEK WATERSHED DISTRICT OAKDALE, MN 55128

PROPOSED PLAN & PROFILE - 5

SHEET 19 OF 19

Plot Date: 06/30/2023
Drawing name: X:\Clients_WD\041_BCWD\0418_Brown's_Ck_Pk_Restr\09_GIMS\dwg\0041_0418-CD.dwg
Xrefs: 40041_0418-SURFACE
40041_0418-PBASE
40041_0418-TBASE
40041_0418-LBASE ; Images: ..\Images\811 ..\Images\BCWD_logo x:\clients_wd\041_bcwd\0418_brown's_ck_pk_restr\09_gims\Images\GSOCLogo_2019

ENGINEER'S OPINION OF PROBABLE COST (EOPC) - 30% DESIGN	
BCWD - BROWN'S CREEK PARK	
PREPARED BY EMMONS & OLIVIER RESOURCES, INC.	
EOR JOB NO.	0041-0418
DATE PREPARED	6/30/2023

water ecology community

ITEM #	MNDOT Ref #	BASE BID ITEM	UNIT	QUANTITY	UNIT COST	TOTAL COST
1	2021.501	Mobilization	LS	1	$ 24,000.00	$ 24,000.00
2	2563.601	Traffic Control	LS	1	$ 1,500.00	$ 1,500.00
3	2101.501	Site Clearing/Selective Tree Harvest for Rootwads & Tree Trunks (212 Trees TBR)	AC	10.2	$ 4,000.00	$ 40,800.00
4	2105.507	Common Excavation - Onsite Disposal- Grading Practices	CY	1211	$ 10.00	$ 12,106.44
5	2105.507	Common Excavation - Onsite Disposal- Riffle Grading	CY	105	$ 15.00	$ 1,572.22
6	SP	Hauling Excavated Material to On-site Spoils Area	CY	985	$ 15.00	$ 14,776.33
7	2511.509	Riprap, Modified Class III (Boulder Toe & Grade Control)	TON	688	$ 80.00	$ 55,038.00
8	2511.509	1" - 3" Crushed Granite (For Rock Riffles)	TON	58	$ 150.00	$ 8,705.81
9	SP	Toewood - Installation	LF	480	$ 80.00	$ 38,400.00
10	SP	Brush/Log Toe - Installation	LF	1360	$ 60.00	$ 81,600.00
11	2573.501	Stabilized Construction Exit	EA	2	$ 2,500.00	$ 5,000.00
12	2575.505	Seeding - Site Disturbance	AC	10.2	$ 800.00	$ 8,160.00
13	2575.508	Seed, State Mix 34-261	LBS	71	$ 50.00	$ 3,550.00
14	2575.508	Seed, State Mix 36-711	LBS	96	$ 50.00	$ 4,800.00
15	2575.508	Hydraulic Soil Stabilizer, Type 8 (Mat Inc® Soil Guard or approved equal)	LBS	8651	$ 2.00	$ 17,302.00
16	2575.511	Mulch Type 1 (Weed-Free Straw or Approved Equal)	TON	16.0	$ 600.00	$ 9,600.00
17	2573.501	Erosion Control Supervisor	LS	1	$ 2,500.00	$ 2,500.00
18	SP	Temporary Irrigation for Vegetation Establishment	DAY	5	$ 2,000.00	$ 10,000.00
19	SP	Extended Vegetation Management - Year 1	LS	1	$ 5,000.00	$ 5,000.00
20	SP	Extended Vegetation Management - Year 2	LS	1	$ 5,000.00	$ 5,000.00
21	SP	Inspection & Maintenance/Repair of Work - Year 1	LS	1	$ 6,000.00	$ 6,000.00
22	SP	Inspection & Maintenance/Repair of Work - Year 2	LS	1	$ 3,000.00	$ 3,000.00
					BASE BID SUBTOTAL	$ 358,410.81
					CONSTRUCTION CONTINGENCY 20.00%	$ 71,682.16
					Construction Total	$ 430,092.98
					ESTIMATED ACCURACY RANGE*** 7.50%	$ 462,349.95
					-7.50%	$ 397,836.00

Resolution No. 23-04

Brown's Creek Watershed District
Board of Managers

Ordering the Brown's Creek Restoration Project and authorizing work in support of the project by the engineer and administrator

Manager _____ offered the following resolution and moved its adoption, seconded by Manager _____:

Whereas Brown's Creek Watershed District has an approved and adopted watershed resources management plan in fulfillment of Minnesota Statutes section 103B.231 including policies committing BCWD to the improvement of the water quality and ecological integrity of Brown's Creek and its tributaries, including maintaining a viable cold-water fishery and maintaining the hydrology and geomorphology of Brown's Creek and its tributaries required for stream equilibrium and health, and the capital improvements program in the plan includes creek-restoration projects addressing impairments of Brown's Creek for turbidity and fish-bioassessments identified in the Brown's Creek Total Maximum Daily Load Plan (2012) and the Brown's Creek Thermal Study (2016), including improvement of reaches categorized as having degraded stream channel geomorphology by addressing lack of buffer, stream width, overhanging banks, and profile and alignment;

Whereas at its November 2022 meeting, the BCWD Board of Managers directed BCWD staff and the engineer to assess the feasibility of the capital improvements in the plan to address the impairments and restore water quality and habitat in Brown's Creek, and staff and the engineer conducted necessary surveys and worked with the Department of Natural Resources and the City of Stillwater to develop a conceptual design for restoration of 2,000 feet of the creek from McKusick Road just upstream of Brown's Creek Park to just downstream of the Brown's Creek State Trail in Stillwater, and the concept includes:

- reconnection of cutoff meanders, pattern adjustments to increase stream sinuosity, and grade control to reconnect the floodplain adjacent to the creek;
- reconnect the floodplain removal of invasive species from the bank and upstream areas along the reach;
- bank shaping and selective tree thinning to promote herbaceous understory growth;
- restoration of fish habitat with rock riffles and pools to increase spawning opportunities and provide stable refuge for macroinvertebrates;
- improved access to the creek from Brown's Creek State Trail.

(The work described here is collectively referred to hereafter as "the Project.")

Whereas at its July 2023 regular meeting, the BCWD Board of Managers authorized and directed the BCWD engineer to complete an environmental assessment worksheet for the Project pursuant to Minnesota Statutes chapter 116D for presentation to the managers, sitting as the Responsible Governmental Unit as agreed to by representatives of the Department of Natural Resources pursuant to Minnesota Rules 4410.4300, subpart 27A, to make a determination on whether the Project has the potential to have significant negative environmental effects pursuant to Minnesota Statutes section 116D.04, subdivision 2a;

Whereas the Project would be undertaken on parcels owned or controlled by Washington County, the City of Stillwater, the State of Minnesota and the Beltram H. Van Tassel Trust, and BCWD staff have secured preliminary agreement from such property owners to facilitate construction and implementation of the Project;

Whereas the estimated cost of the Project, including engineering, design, planning, permitting, construction and construction oversight, is $534,500, which will be funded through a watershed-wide ad valorem levy of $213,800 as authorized by Minnesota Statutes chapter 103B.241 and a federal water-quality grant administered by the Minnesota Pollution Control Agency of $320,700;

Whereas after presentation of the concept for and assessment of the feasibility of the Project at its July 2023 meeting, the BCWD Board of Managers held a duly noticed public hearing on the Project pursuant to Minnesota Statutes section 103B.251, subdivision 3, at the September 13, 2023, regular meeting of the managers, at which interested members of the public were provided with the opportunity to comment on the Project, and [no] comments were offered; and

Whereas in consideration of the above-cited record in the matter, the board of managers finds that the Project will be conducive to public benefit and promote the general welfare, and represents a cost-effective contribution to the implementation of the watershed plan and the fulfillment of BCWD's powers and purposes under Minnesota Statutes chapters 103B and 103D.

Now, therefore, be it resolved that the Brown's Creek Watershed District Board of Managers hereby orders the Project, and directs that BCWD's costs thereof be funded through a watershed-wide levy, except as offset by grant funding received;

Be it further resolved that the BCWD Board of Managers directs the administrator to prepare agreements for the access and use of the property necessary for the successful implementation of the Project with fee title owners of such property and to present drafts of such agreements to the board for approval and authorization to execute on behalf of BCWD;

Be it further resolved that the BCWD Board of Managers approves the task order for the BCWD engineer to complete the design and construction documents, including final plans and specifications and all other documentation necessary to procure bids for

implementation of the Project, and to provide implementation oversight for the Project and authorizes the task order for a total cost not to exceed $75,338;

Be it further resolved that the BCWD Board of Managers directs the administrator to utilize the final plans and specifications to obtain bids for construction and implementation of the Project in accordance with applicable public-procurement law and to timely present bids received to the managers for approval.

The question was on the adoption of the resolution and there were ___ yeas and __ nays as follows:

	Yea	Nay	Abstain	Absent
Eckles	☐	☐	☐	☐
Johnson	☐	☐	☐	☐
LeRoux	☐	☐	☐	☐
Wirth	☐	☐	☐	☐

Upon vote, the president declared the resolution adopted September 13, 2023.

_____
Chuck LeRoux, Secretary

* * * * * * * * * * * *

I, Chuck LeRoux, secretary of the Brown's Creek Watershed District, do hereby certify that I have compared the above resolution with the original thereof as the same appears of record and on file with BCWD and find the same to be a true and correct transcription thereof.

IN TESTIMONY WHEREOF, I set my hand this _____ day of _____, 2023.

_____
Chuck LeRoux, Secretary

Brown's Creek Watershed District
2024 Budget
Budget Workshop 8-16-2023

		Estimated 2023 Carry Forward	2024 Grants	2024 Levy	2024 Total Budget	Change from 2023 to 2024
100-2910	Designated Funds - Management Plan Projects	*$ 1,003,777*			$ 1,003,777	$ (226,597)
					$ -	$ -
Revenue					$ -	$ -
100-3700	Interest Income				$ -	$ -
100-3601	Metropolitan Council Outlet Monitoring Grant		$ 5,000		$ 5,000	$ -
100-3630	Washington County Cost-share Applewood Reuse	*$ 66,800*			$ 66,800	$ -
100-3631	MPCA Small Watershed Grant 2023-2026	*$ 320,706*			$ 320,706	$ 1
100-3100	Tax Levy			$ 1,180,803	$ 1,180,803	$ 30,388
TOTAL, ESTIMATED Sources of Funding		***$ 1,391,283***	***$ 5,000***	***$ 1,180,803***	**$ 2,577,086**	**$ (196,209)**

ACCT. #	General Expenses	Estimated 2023 Carry Forward	2023 Grants	2023 Levy	2023 Total Budget	Change from 2016 to 2017
200-4000	Manager Per Diem and Expense			$ 10,000	$ 10,000	$ -
200-4220	Secretarial Services	*$ 4,000*		$ (4,000)	$ -	$ (4,000)
200-4250	Dues & Subscriptions (MAWD 6500 and LMCIT 2500)			$ 9,000	$ 9,000	$ 2,000
200-4270	Bonding & Insurance			$ 6,000	$ 6,000	$ 500
200-4280	Postage & Delivery			$ 1,000	$ 1,000	$ -
200-4290	Printing & Notices			$ 1,000	$ 1,000	$ -
200-4330	Accounting			$ 4,560	$ 4,560	$ 255
200-4331	Audit			$ 10,300	$ 10,300	$ 950
200-4949	Misc., Other Expense			$ 2,000	$ 2,000	$ -
200-4320	Wash. Conservation District--Admin			$ 58,670	$ 58,670	$ 3,030
200-4265	Admin Conference Registrations			$ 2,000	$ 2,000	$ -
200-4410	Legal Fees - General			$ 25,800	$ 25,800	$ 1,320
200-4500	Staff Engineer			$ 28,445	$ 28,445	$ 1,355
	Diversity, Equity and Inclusion Training			$ 5,000	$ 5,000	$ -
	Contingency Reserve	*$ 50,000*		$ -	$ 50,000	$ (18,401)
TOTAL GENERAL FUND EXPENSES:		***$ 54,000***	***$ -***	***$ 159,775***	**$ 213,775**	**$ (12,992)**

ACCT. #	MANAGEMENT PLAN EXPENSES	Estimated 2023 Carry Forward	2023 Grants	2023 Levy	2023 Total Budget	Change from 2021 to 2022
300-4320	Wash. Conservation District--Administrator			$ 176,005	$ 176,005	$ 5,995
300-4410	Legal Fees - Mgmt Plan			$ 60,000	$ 60,000	$ 8,000
300-4501	Staff Engineer			$ 90,474	$ 90,474	$ 4,308
300-4702	Permitting, Legal Review			$ 15,000	$ 15,000	$ 2,000
300-4703	Permitting, Engineering Review			$ 55,000	$ 55,000	$ 2,500
300-4704	Permitting, Inspection Database			$ 1,000	$ 1,000	$ -
300-4710-1	Baseline Monitoring		$ 5,000	$ 136,420	$ 141,420	$ (1,795)
300-4640	Equip. Maint. and Upgrades	*$ 15,000*		$ 10,000	$ 25,000	$ (2,500)
300-4810	Shared Educator Position			$ 20,500	$ 20,500	$ -
300-4950	Management Plan Implementation -future projects			$ -	$ -	$ (20,993)
903-0001	Trout Habitat Preservation Project: Monitoring,			$ 6,500	$ 6,500	$ (2,031)
909-0000	Rules Review/Evaluation	*$ 27,000*		$ 3,000	$ 30,000	$ 2,877
909-0001	Groundwater Dep Nat Resource Inventory update	*$ 10,000*		$ (10,000)	$ -	$ (10,000)
909-0002	Permitting Program Internal Procedure updates	*$ 25,000*			$ 25,000	$ -
910-0000	Education & Outreach			$ 15,000	$ 15,000	$ (1,537)
911-0000	Volunteer Stream Monitoring			$ 4,045	$ 4,045	$ 89
912-0000	Grant Preparation				$ -	$ (5,000)
914-0000	Homeowner BMP Program			$ 50,000	$ 50,000	$ (18,000)
922-0000	Plan Reviews - LGU/LWMP				$ -	$ -
923-0000	H & H Model Maintenance	*$ 10,250*		$ 141,030	$ 151,280	$ 141,030
923-0002	Flood Risk Assessment	*$ 89,316*		$ (73,566)	$ 15,750	$ (84,250)
927-0000	Management Plan Update	*$ 127,000*		$ 90,000	$ 217,000	$ 70,000
929-0000	Long Lake Plan Implementation-shoreline management	*$ -*		$ -	$ -	$ (3,700)
929-0010	Long Lake -Implementation - regional treatment	*$ 75,000*		$ (75,000)	$ -	$ (305,550)
929-0011	Long Lake - 62nd Street Pond Retrofit Feasibility	*$ 15,000*			$ 15,000	$ (4,123)
929-0012	Long Lake - Marketplace Reuse Feasibility	*$ 164,900*		$ 60,220	$ 225,120	$ 58,301
931-0001	Benz Lake Management Plan Implementation	*$ 15,500*		$ (15,500)	$ -	$ (15,500)
932-0004	Iron Enhanced Sand Filter/Performance Monitoring				$ -	$ -
935-0000	Land Conservation Program	*$ 100,000*		$ 50,000	$ 150,000	$ 50,000
935-0002	110th Street Property Implementation	*$ 48,457*		$ 25,000	$ 73,457	$ 25,000
935-0003	Develop Land Conservation Priorities	*$ 20,000*			$ 20,000	$ -
940-0000	BMP Program – LGU/Community Demonstration Projects	*$ 10,000*			$ 10,000	$ -
940-0001	Flood Prevention Grant Program	*$ -*			$ -	$ -
942-0004	Measuring Trends in GW Elevations & Flow	*$ 4,000*			$ 4,000	$ (10,262)
942-0007	Groundwater - Browns Creek piezometers	*$ 8,960*			$ 8,960	$ -
942-0011	Groundwater - Coordination with users			$ 24,000	$ 24,000	$ 18,060
942-0012	Groundwater - Install Monitoring Wells	*$ 58,000*		$ (58,000)	$ -	$ (65,801)
942-0013	Groundwater - Pump Test	*$ 15,000*		$ (15,000)	$ -	$ (21,300)
947-0011	Countryside Auto BMP-performance monitoring				$ -	$ -
947-0016	Brown's Creek - BC Trails Park Parking Lot Perfm Mon				$ -	$ -
947-0017	Brown's Creek Implementation - Ecoli site visits/cost-share	*$ 10,000*			$ 10,000	$ -
947-0018	Brown's Creek - Biological Survey (Macroinvert & Fish)	*$ 4,000*			$ 4,000	$ (4,810)
947-0022	Brown's Creek - Buffer and Stream Restoration	*$ 330,000*		$ 133,000	$ 463,000	$ 58,449
947-0023	Brown's Creek - Golf Course Reuse - Oak Glen	*$ -*			$ -	$ (6,300)
947-0025	Brown's Creek - Golf Course Reuse - SCC				$ -	$ -
947-0026	Brown's Creek - Brown's Creek Cove Reach			$ 20,000	$ 20,000	$ 20,000
948-0000	CIP Maintenance	*$ 30,900*		$ 135,000	$ 165,900	$ 48,300
950-0001	South School Curly Leaf Treatment	*$ 1,000*		$ (1,000)	$ -	$ (8,000)
950-0002	Lynch Lake Fish/Veg Management	*$ -*			$ -	$ (4,966)
951-0001	Woodpile Lake Management Plan Implementation	*$ 10,000*		$ (10,000)	$ -	$ (10,000)
953-0000	Fen Management Plan Implementation	*$ -*			$ -	$ (4,000)
956-0000	Bass East & West Management Plan	*$ -*			$ -	$ -
957-0000	Weather Station	*$ -*		$ 3,700	$ 3,700	$ -
959-0001	Resource Assessment - upstream 110th/Drone flight	*$ -*		$ 4,700	$ 4,700	$ 4,700
959-0002	Resource Assessment - Diversion Tribs - Head cut Repairs	*$ 60,000*		$ (60,000)	$ -	$ (60,000)
959-0003	Resource Assessment - Brown's Creek Gorge Bluff	*$ -*			$ -	$ (1,798)
960-0000	St Croix Phosphorus Reduction	*$ 10,000*			$ 10,000	$ -
961-0000	Mendel Wetland Restoration Feasiblity	*$ 20,000*		$ 15,000	$ 35,000	$ (953)
962-0000	District-Wide Pond Management Planning/Implementation	*$ 10,500*		$ 4,500	$ 15,000	$ (19,657)
963-0000	District-Wide Vegetation Surveys	*$ 10,000*		$ (10,000)	$ -	$ (10,000)
964-0000	District-Wide Chloride Source Assessment	*$ 2,500*			$ 2,500	$ -
TOTAL MANAGEMENT PLAN PROJECT EXPENSES:		***$ 1,337,283***	***$ 5,000***	***$ 1,021,028***	***$ 2,363,311***	**$ (183,217)**
TOTAL, OPERATING EXP. & MGMT. PLAN PROJECTS:		***$ 1,391,283***	***$ 5,000***	***$ 1,180,803***	***$ 2,577,086***	***$ (196,209)***

Resolution No. 23-05

BROWN'S CREEK WATERSHED DISTRICT BOARD OF MANAGERS
2024 BUDGET & CERTIFIED 2024 TAX LEVY RESOLUTION: ALL FUNDS

Manager _____ offered the following resolution and moved its adoption, seconded by Manager _____.

WHEREAS on September 13, 2023, pursuant to published notice and in conformance with Minnesota Statutes § 103D.911, the Brown's Creek Watershed District Board of Managers held a public hearing to receive comments on the District's 2024 budget and levies; and

WHEREAS public testimony was received on the proposed budget and considered by the managers;

NOW, THEREFORE, BE IT RESOLVED that the Brown's Creek Watershed District Board of Managers adopts a 2024 Operating and Capital Budget totaling $2,577,086 as follows:

Management Plan Implementation	$ 2,363,311
Operations	$ 213,775

NOW, THEREFORE, BE IT FURTHER RESOLVED, the District's 2024 budget includes a 2023 carryover and certain non-levy revenues, together totaling $1,396,283, resulting in a levy of $1,180,803;

NOW, THEREFORE, BE IT FURTHER RESOLVED that a mill rate sufficient to produce the following sums, totaling $1,180,803, be levied upon all taxable property in Brown's Creek Watershed District, Washington County, State of Minnesota, for the year of 2024, and for the purposes noted below:

1. General Fund: $159,775 for the purpose of paying the administrative expenses of the District as provided by Minnesota Statute §103D.905, subdivision 3; and,

2. Management Planning Fund: $1,021,028 for the purpose of paying the cost of watershed management planning and implementation of specific projects according to the Watershed Management Plan, as provided by Minnesota Statutes 103B.241.

The question was on the adoption of the resolution and there were ___ yeas and ___ nays as follows:

	Yea	Nay	Absent
ECKLES	☐	☐	☐
JOHNSON	☐	☐	☐
LEROUX	☐	☐	☐
WIRTH	☐	☐	☐

Upon vote, the chair declared the resolution adopted.

* * * * * * * * * * *

I, Charles LeRoux, secretary of the Brown's Creek Watershed District, do hereby certify that I have compared the above resolution with the original thereof as the same appears of record and on file with the BCWD and find the same to be a true and correct transcript thereof.

IN TESTIMONY WHEREOF, I have hereunto set my hand this ____ day of _____, 2023.

_____
Charles LeRoux, Secretary

Project Name |	BCWD Permit Program	**Date** |	9/8/2023
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Karen Kill, District Administrator		
From / Contact info |	John Sarafolean, EOR; Paul Nation, PE / EOR		
Regarding |	August Permit Inspection Update		

Background

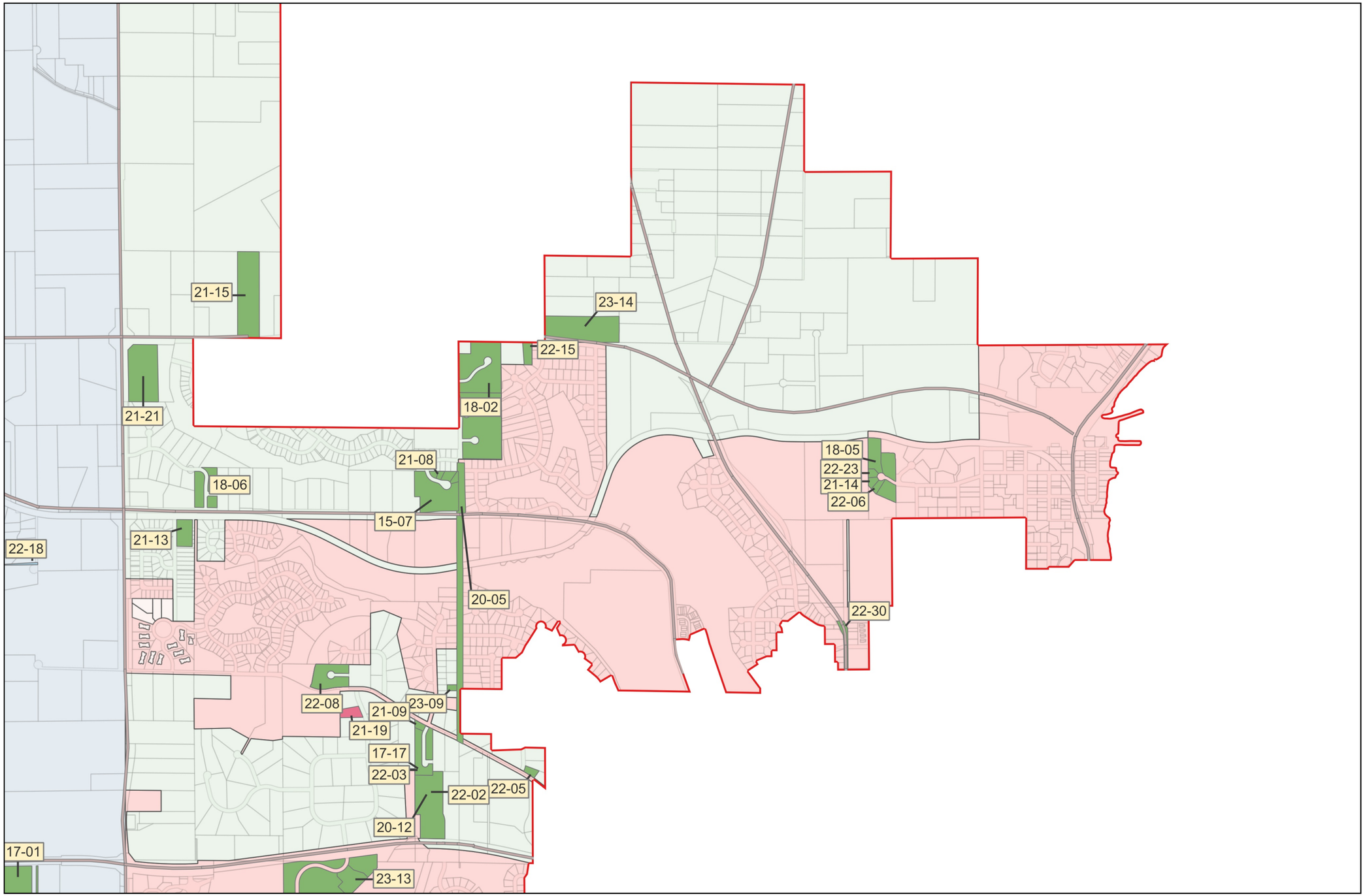
BCWD has an on-going permit review process in support of the District Rules. Developments within the District Jurisdictional Boundary are reviewed for compliance with the Rules and conditions of the permit. This memo documents inspections from 8/9/2023 through 9/8/2023.

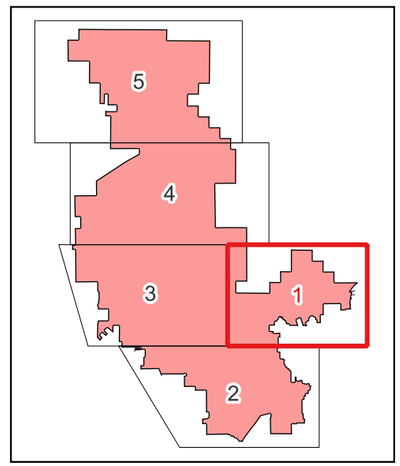
Inspection of Existing Permits

Project Name	Permit ID	Date	Grade
West Ridge Development	17-17	09/06/2023	B
Heritage Ridge Development	18-05	09/06/2023	B
Wahlquist Residence	20-10	08/11/2023	A
Westridge Block 1 Lot 1	21-09	09/06/2023	A
WOS Lot 106 Wiechmann Residence	22-11	08/11/2023	C
		08/28/2023	C
Read Residence	22-17	08/11/2023	A
Popeyes	22-20	08/28/2023	B
3873 Tending Green	22-21	08/11/2023	A
Fanberg Residence	22-22	08/11/2023	B
WOS Lot 109 Benjamin-Mohammed Residence	22-24	08/11/2023	B
		08/28/2023	B
WOS Lot 113 Miller-Duis Residence	22-25	08/11/2023	A
		08/28/2023	A
3823 Tending Green	22-26	08/11/2023	A
CSAH 5 Ph. 2	22-30	09/06/2023	A
CR 61 Improvements	23-01	9/06/2023	A
WOS Lot 114 Tweden Residence	23-02	08/11/2023	C
		08/28/2023	B
Boutwell Farm Lot 1	23-03	08/11/2023	C
		09/06/2023	C
Westridge Block 1 Lot 4	23-04	09/06/2023	B

WOS Lot 118 Villa Rococo Residence	23-07	08/11/2023	B
72nd Street Improvements	23-08	08/11/2023	B
		09/06/2023	B
Kirn Residence	23-09	09/06/2023	A
WOS Lot 122 Freitag-Pomroy Residence	23-11	08/11/2023	B
		08/28/2023	B
Sandhill Shores (Lakes of Stillwater Phase 3)	23-13	08/11/2023	B
		09/06/2023	B
Wiskow Berm	23-14	09/06/2023	A

Permit No.	Applicant/Permit Name	Status
15-07	Brown's Creek Cove	Active
16-03	The Ponds at Heifort Hills	Active
17-01	White Oaks Savanna	Active
17-04	The Lakes of Stillwater	Active
17-17	Westridge	Active
18-02	Heifort Hills Estates	Active
18-04	Boutwell Farm	Active
18-05	Heritage Ridge	Active
18-06	Nottingham Village	Active
20-05	Neal Avenue Reconstruction	Active
20-12	White Pine Ridge	Active
21-07	Brown's Creek Cove Lot 11	Active
21-08	Brown's Creek Cove Lot 14	Active
21-09	Westridge B1L1	Active
21-13	Marylane Gateway	Active
21-14	Heritage Ridge (lot 3)	Active
21-15	Schwartz Residence	Active
21-21	Millbrook West Park	Active
22-02	White Pine Ridge, remaining lots	Active
22-03	Westridge, remaining lots	Active
22-05	13290 Boutwell Rd N	Active
22-06	Heritage Ridge Lot 2	Active
22-08	Boutwell Farm, remaining lots	Active
22-14	Cahill Residence (Heritage Ridge Lots 5/6)	Active
22-15	13199 Dellwood Rd	Active
22-18	Stillwater Oaks	Review
22-23	Ferguson Residence (Heritage Ridge Lot 4)	Active
22-30	CSAH 5 Phase 2	Active
23-09	Kirn Residence	Active
23-13	Sandhill Shores (Phase III of Lakes at Stillwater)	Active
23-14	Wiskow Berm	Active





Active Permit
Conditional Approval
Under Review
BCWD Political Boundary

BCWD Permit Sites
September 8, 2023

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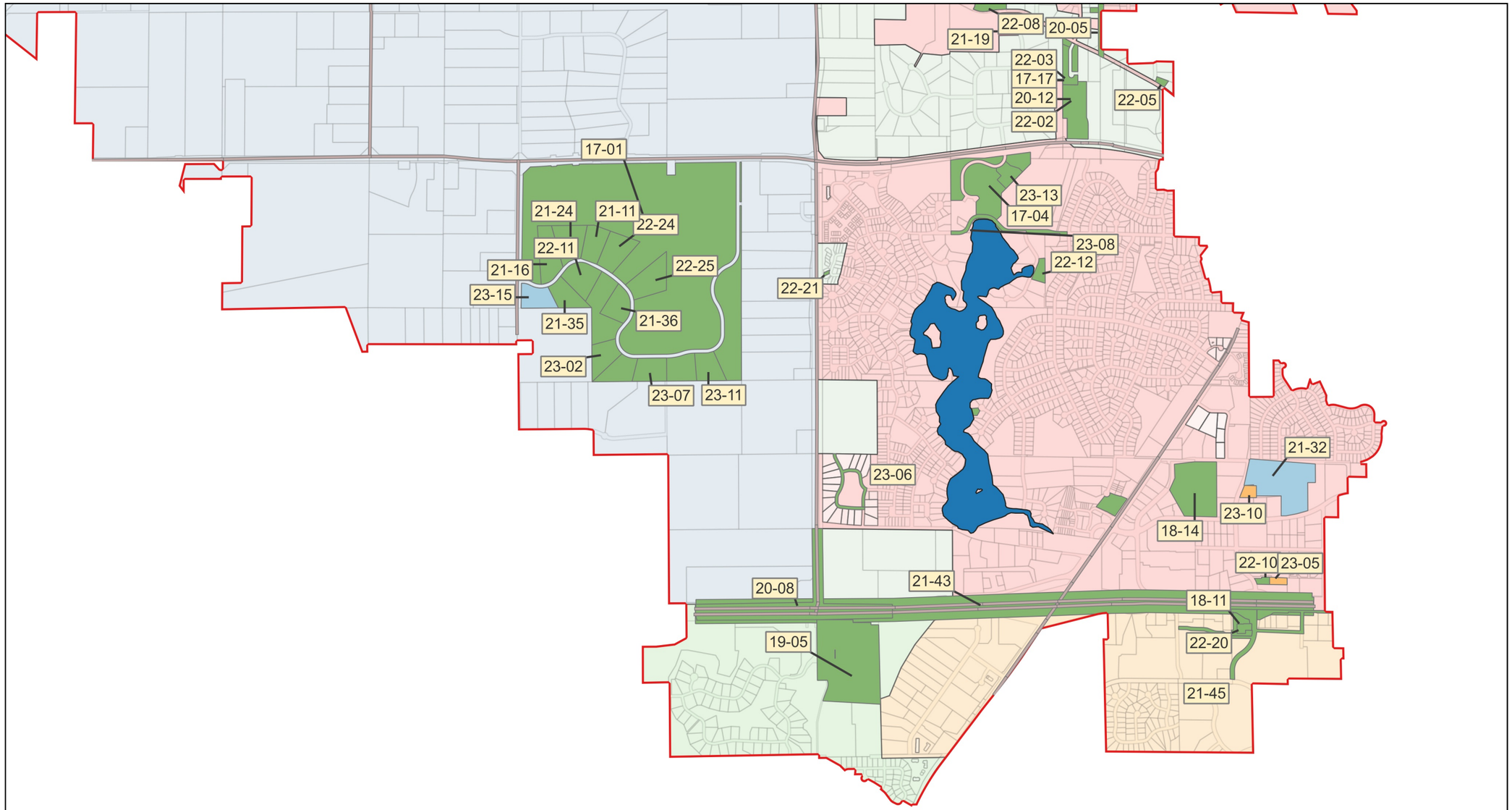
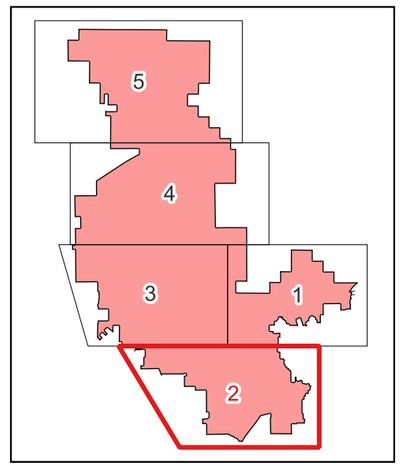


Permit No.	Applicant/Permit Name	Status
17-01	White Oaks Savanna	Active
17-04	The Lakes of Stillwater	Active
17-14	Parkwood Townhomes	Active
17-17	Westridge	Active
18-04	Boutwell Farm	Active
18-11	Ridgecrest	Active
18-14	St. Croix Valley Recreation Center Expansion	Active
19-05	Central Commons	Active
20-05	Neal Avenue Reconstruction	Active
20-08	TH36 CSAH 15 Interchange	Active
20-12	White Pine Ridge	Active
21-09	Westridge B1L1	Active
21-11	Hegarty Residence (WOS Lot 107)	Active
21-16	Ignagni Residence - WOS B1L2	Active
21-24	Nepal Residence - WOS B1L3	Active
21-32	Lakeview EMS	Review
21-35	WOS Lot 104	Active
21-36	Valdres Residence (WOS Lot 110)	Active
21-43	MnDOT TH-36	Active
21-45	Norell Avenue Improvements	Active
22-02	White Pine Ridge, remaining lots	Active
22-03	Westridge, remaining lots	Active
22-05	13290 Boutwell Rd N	Active
22-08	Boutwell Farm, remaining lots	Active
22-10	Caribou	Active
22-11	Wiechmann Residence	Active
22-12	7171 Mid Oaks Ave Pool	Active
22-19	Miller Flood Protection	Active
22-20	Popeyes OPH	Active
22-21	Kreller Residence	Active
22-24	Benjamin-Mohammed Residence (WOS Lot 109)	Active
22-25	Miller-Duis Residence (WOS Lot 113)	Active
23-02	Tweden Residence	Active
23-05	Rocket Carwash	Pending
23-06	Stillwater 2023 Street Improvements	Active
23-07	Villa Rococo Residence	Review
23-08	72nd St Improvement	Active
23-09	Kirn Residence	Active
23-10	Curio Dance Studio	Pending
23-11	Freiroy Residence	Active
23-13	Sandhill Shores (Phase III of Lakes at Stillwater)	Active
23-15	Mensah Residence	Review



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Layout: Permit Update Map

Active Permit
Conditional Approval
Under Review
BCWD Political Boundary

BCWD Permit Sites
September 8, 2023

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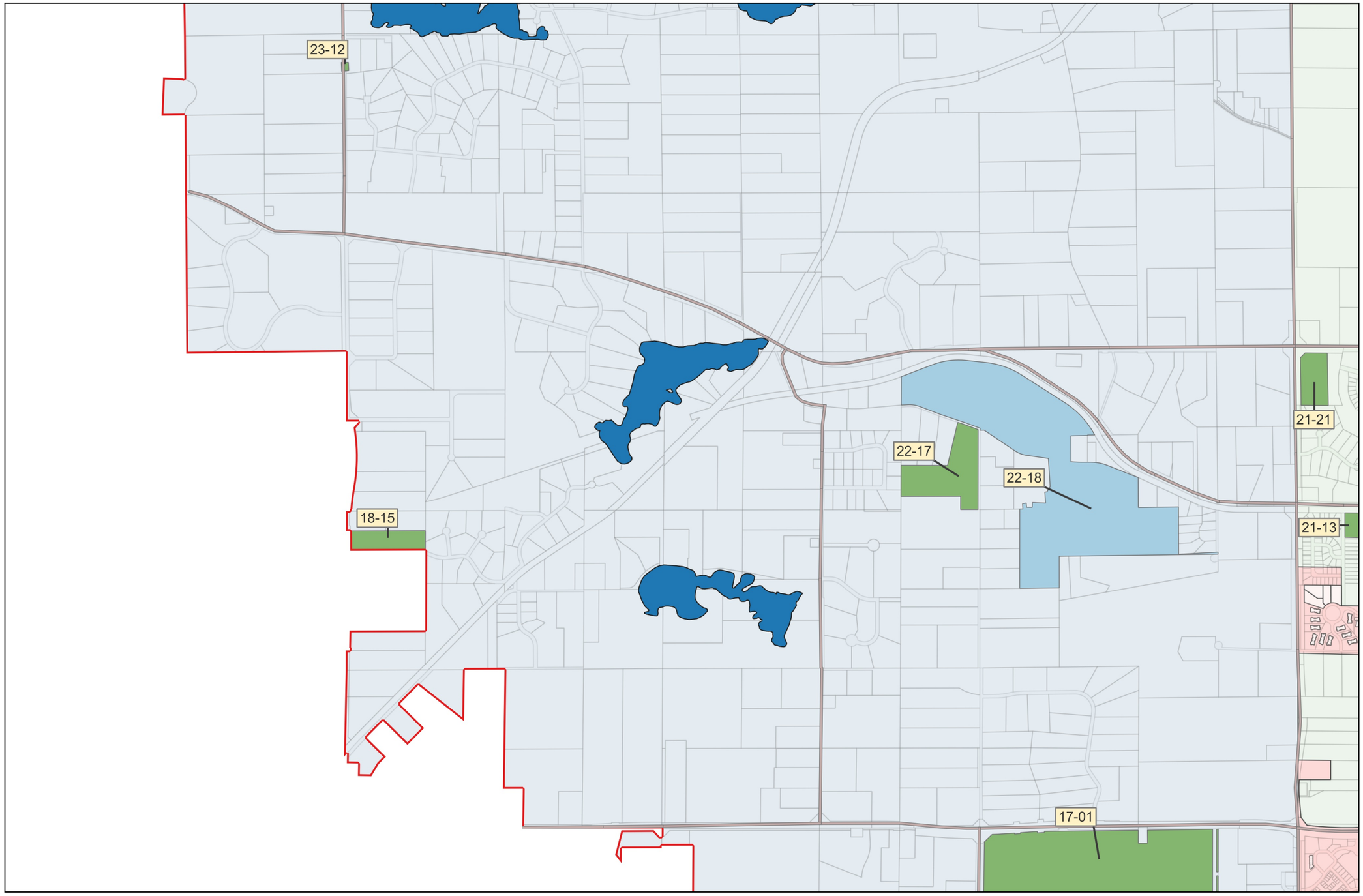
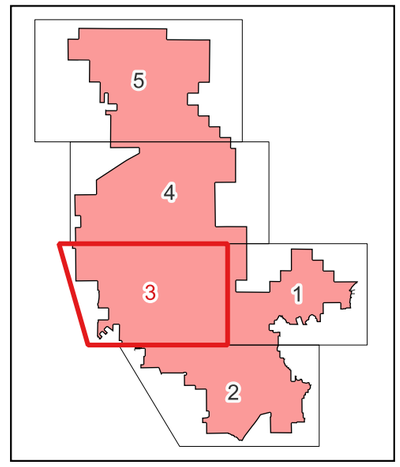
Permit No.	Applicant/Permit Name	Status
17-01	White Oaks Savanna	Active
18-15	Rogness Residence	Active
21-13	Marylane Gateway	Active
21-21	Millbrook West Park	Active
22-17	Read Residence	Active
22-18	Stillwater Oaks	Review
23-12	CSAH 9 Culvert Replacement	Active





Active Permit
Conditional Approval
Under Review
BCWD Political Boundary

BCWD Permit Sites
September 8, 2023

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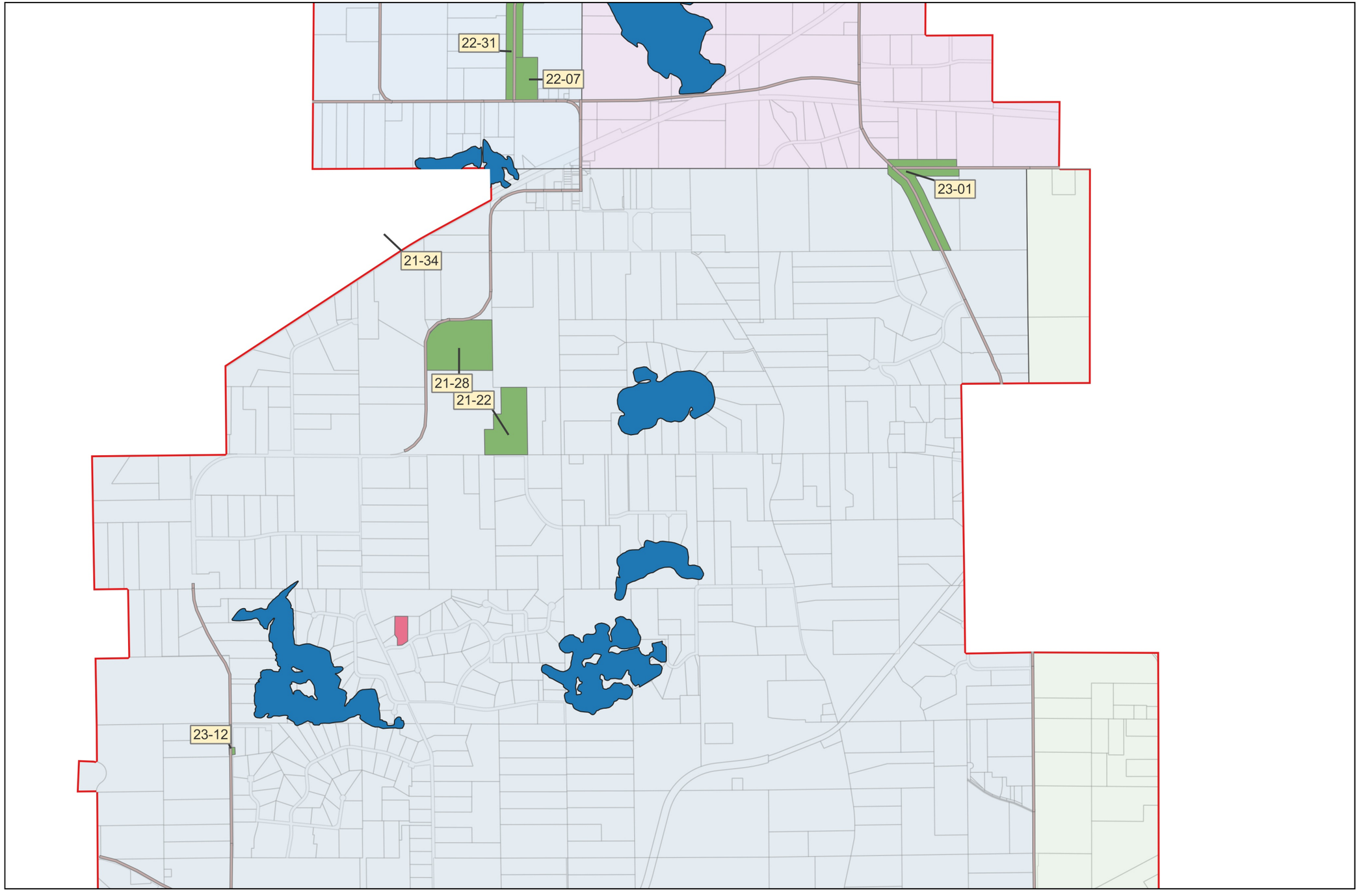
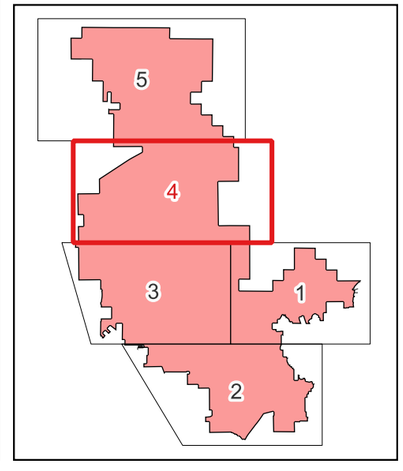
Permit No.	Applicant/Permit Name	Status
21-22	Bond Residence	Active
21-28	Guerrino Residence	Active
21-34	Fahey Residence	Active
22-07	Liberty Classical Academy	Active
22-31	County Road 57 Culverts	Active
23-01	County Road 61 Improvements	Active
23-12	CSAH 9 Culvert Replacement	Active





Active Permit
Conditional Approval
Under Review
BCWD Political Boundary

BCWD Permit Sites
September 8, 2023

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Layout: Mark
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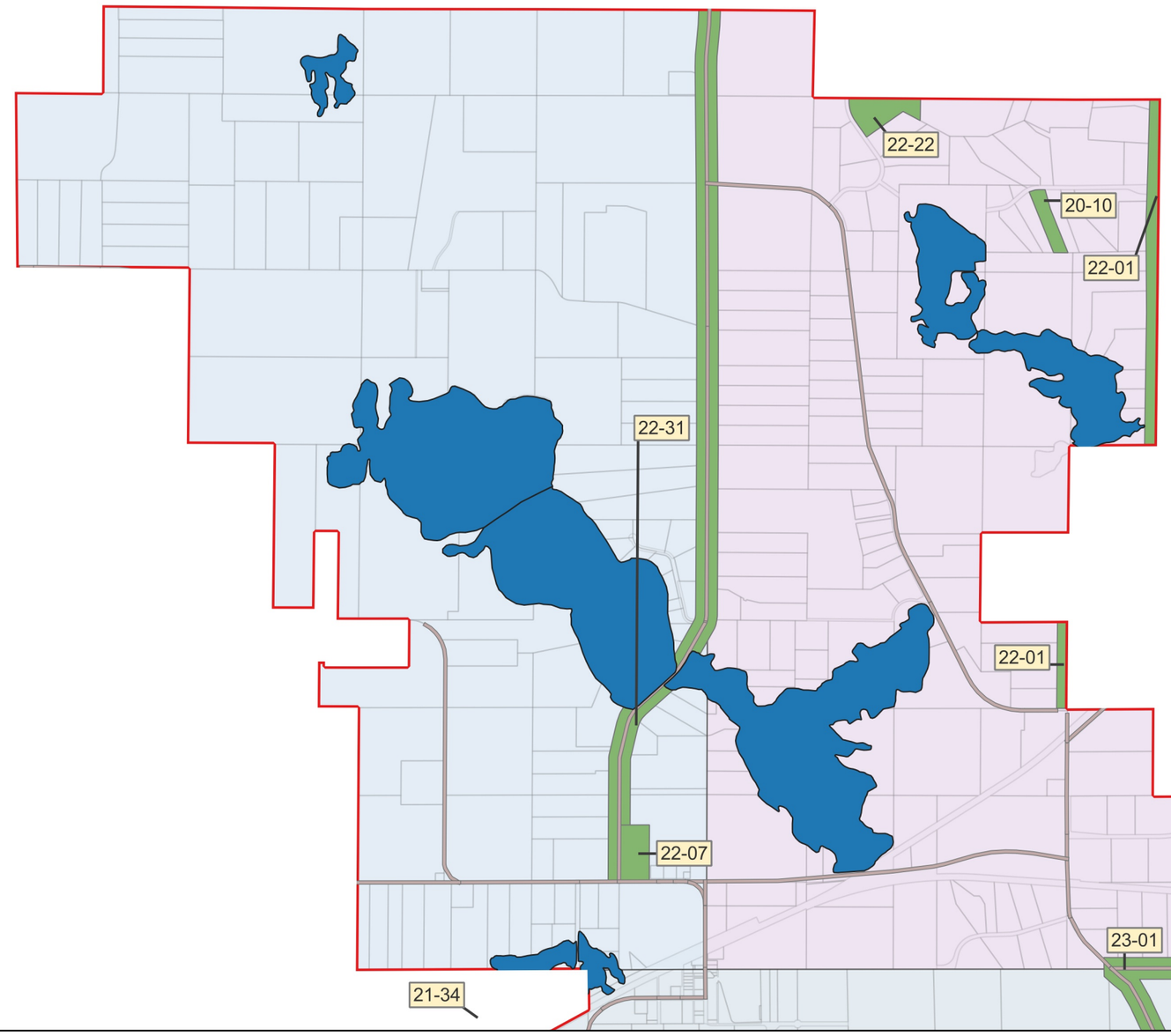
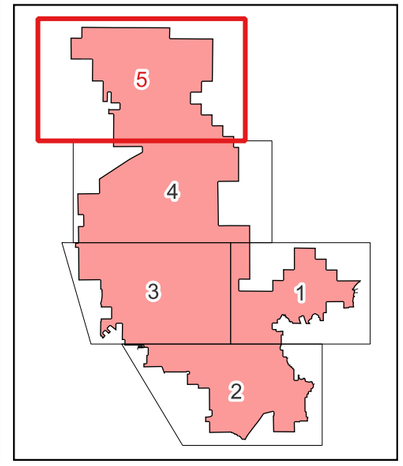
Permit No.	Applicant/Permit Name	Status
20-10	Wahlquist Residence	Active
21-34	Fahey Residence	Active
22-01	CSAH 15 Culverts	Active
22-07	Liberty Classical Academy	Active
22-22	Fanberg Residence	Active
22-31	County Road 57 Culverts	Active
23-01	County Road 61 Improvements	Active





BCWD Permit Sites
September 8, 2023

- Active Permit
- Conditional Approval
- Under Review
- BCWD Political Boundary

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