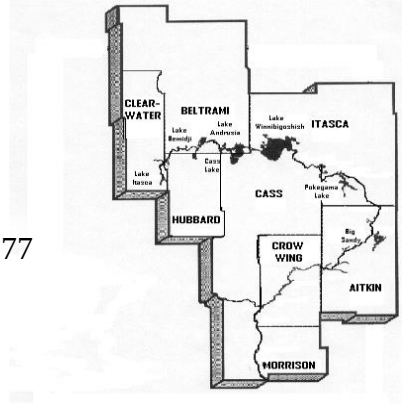
Mississippi Headwaters Board
Meeting Agenda
MHB Conference Room
322 Laurel St. Brainerd, MN 56401



Webconference: https://us02web.zoom.us/j/81176626177

August 28, 2020
9:00 am

9:00 AM

- **Call to Order/Pledge of Allegiance**

9:05 AM Approve/Amend

- Agenda
- Consent Agenda – July ’20 Minutes & Expenses

Planning and Zoning (Actions)

- GBA8a20- Blair Variance

Action / Discussion Items:

- Brainerd Stormwater Retrofit analysis- Shawn Tracy presenting
- Recreational signage program
- MHB Protection Strategy
- Executive Director’s Report

Misc: ☼ Legislature Update (if any) ☼ County Updates

Meeting Adjourned - Thank you

Mtgs: September 25, ’20, 9:00 AM – Cass Land Dept. building

Attachment 1 & 2

Draft Minutes

Monthly Expenses

Mississippi Headwaters Board
July 24, 2020
Cass Land Dept. building
Backus, MN

Webconference: https://hello.freeconference.com/conf/call/6097629

MEETING
MINUTES

Members present by Role Call: Neal Gaalswyk (Cass), Dean Newland (Clearwater video), Craig Gaasvig (Beltrami video), Ted Van Kempen (Hubbard video), Anne Marcotte (Aitkin vdeo) Steve Barrows (Crow Wing video), Mike Wilson (Morrison), Davin Tinquist (Itasca video), and Tim Terrill (Executive Director).

Others Present: Kim Berns-Melhus (The Conservation Fund), Todd Holman (The Nature Conservancy), John Ringle (Cass ESD), James Steve (landowner), Bob McGillivrey (The Trust For Public Land)

Pledge of Allegiance

Chairman Gaalswyk asked if there were any additions to the agenda. None offered. **M/S (Wilson/Newland) to approve of the agenda. Role Call taken. Motion Carried Unanimously.**

M/S (Van Kempen/Tinquist) to approve of the Consent agenda. Role Call taken. Motion Carried Unanimously.

Planning and Zoning
Ca7a20- James Steve Variance- ESD John Ringle presented the variance before the board saying that Mr. Steve was approved by the board of adjustment to build a garage 45' away from the Mississippi River. The MHB Comprehensive Plan calls for a setback of 200'. John stated that this is a legal non-conforming lot and has a type 1 septic and will not exceed the impervious surface rule of 25%. Discussion ensued and Comm. Gaalswyk voiced concern about access to the back of the property due to the lot being so narrow. John stated that this variance was heard before the BOA, and the neighbor is aware of the access issue and that discussion with the neighbor was involved on this matter. He stated that the driveway will allow access to the front of the lot. **M/S (Barrows/Van Kempen) to certify the variance. Role Call taken. Motion Carried Unanimously.**

Action/Discussion:
Comm. Anne Marcotte joined the board meeting via video.

1. The Conservation Fund Potlach Land Purchase- Conservation Director Kim Berns-Melhus provided a powerpoint to the board discussing the potlatch land purchase which is named MN Heritage Forest. She gave a brief overview of the mission of The Conservation Fund (TCF) stated that 72,000 acres will be sold to TCF as a working forest. Kim provided a map and a spreadsheet giving an overview of the purchase but mentioned that because this is a deal with a publicly traded company that she cannot provide specifics at this time. She provided the board with some scenarios of how TCF has worked with other counties in the past, and will work in a variety of ways to accomplish the goals of TCF and the counties over the next 10 years as TCF divests of the land. Comm. Gaalswyk called for questions and Comm. Van Kempen noted that this is a worthy cause and asked questions regarding the tax base

and how it might potentially hurt townships. Kim responded that they have worked with counties in the past to address those concerns. Comm. Newland and Barrows stated that they appreciate the powerpoint and they lake the idea of setting a timetable of 10 years so the county can make strategic decisions. Comm. Gaasvig appreciated that TCF will be paying taxes on the land. Comm. Gaalswyk expressed that his county recognizes that the land exchange option will provide benefits to his county as the conversation develops over time. Comm. Marcotte appreciated the ppt.

Tim provided the board with an opportunity to consider the MHB role in this process as it has easement and acquisition money through LSOHC. He stated that since this is a unique opportunity for counties, he would like to hear the commissioner's thoughts on the MHB being a conduit for land acquisition on land in the Miss. basin and MHB counties that meets the county and the MHB goals. He provided an excerpt from the MHB Comprehensive Plan where it addresses land exchanges and consolidation of land, and a map of what area that would cover. Comm. Van Kempen stated that he liked the idea. Comm. Gaalswyk said that he will have more discussion with his land commissioner and it makes sense to involve the MHB where both goals are met. Comm. Barrows agreed with Comm. Gaalswyk and will need to consult with staff. All commissioners realize that this is at the concept level, and it will be considered more closely as land deals begin to take shape a few years from now.

2. Open Meeting Law and future meetings- Tim provided the statutory language and said that units of government are operating under a pandemic statute that allows them to hold meetings as long as each commissioner can be heard. He said that once the peacetime emergency is over, they will operate under the statute that commissioners must be seen and heard. He proposed the idea that the MHB should be considering how they want to operate in the future after the pandemic and what percentage of meetings should be video conferencing or in-person. Commissioners provided comment and the general understanding is that they prefer to meet in person because of the many benefits of being able to get more discussion and able to "read the room," but that video conferencing should be offered as an opportunity in future meetings. Most agreed that we should switch software from free conference call to Zoom, so Tim will check into that.
3. 2020 Canoe Day- Tim explained that canoe day will be held 8/1 at 9 am, and Sen. Carrie Rudd indicated she will be present. Tim asked if any comm. could attend from 9 am to 10 am to show support and have a conversation in an informal setting with Sen. Rudd. Comm. Barrows and Gaalswyk indicated that they will be there. Comm. Barrows said that he invited the whole CW county board to attend.
4. Route 2 Elsewhere Letter of Support- Tim explained the Route 2 Elsewhere documentary and how they are having trouble applying for grants to air the program on public television. Tim stated that they hope to have a letter of support from partners who were involved in the filming so it might help them attain grants in the future. Comm. Barrows agreed with the Letter of Support but noted to change the "I" to "we" in the last paragraph. The board chose by consensus to send the letter.

5. Executive Directors Report
    a. Tim informed the board that he has been busy working on Canoe Day, MN Traditions, and recreational signage in the past month. He said he invited 104 AIS coordinators to attend a video conference on MN Traditions in which 19 showed up. Tim is busy doing follow up and hoping to gain support from other counties

Legislative Updates- Comm. Gaalswyk explained that a state infrastructure bill was not passed this year.

County Updates- The general discussion from board members was what qualifies for the CARES act funding and what are other counties funding. Discussion about whether non-profits could be funded and what are the

implications if you fund something that the state deems not eligible at a later time. Comm. agreed that the language is not concise on what could be funded. Comm. Gaalswyk encouraged other commissioners communicate and talk across county lines and show courage and unity in their decisions so that it would make a leadership point that items are worthy of funding.

Comm. Gaalswyk adjourned the meeting due to completion of agenda items.

_____ _____

Chair Neal Gaalswyk Executive Director Tim Terrill

July Budget Summary

		YTD spending/reimbursement	Projected Budget	% of budget spent	
Revenues:	**Monthly Amount**				**Explanation**
Governor's DNR grant (53290)	$35,345.00		$124,000.00	0.00%	non competitive quarterly reimbursement
LSOHC grant (53290)			$7,000.00	0.00%	$410.80- revenue correction, $1,861.85- Invoice #5 reimbusem
Guidebook sales (58400)	$19.99		$200.00	0.00%	reimbursment for Guidebook sales
Enbridge program (58300)			$3,000.00	0.00%	estimate $3K in MHB reimbursement for signage project
Miscell. Other revenue (58300)			$2,000.00	0.00%	
MCIT Dividend (58300)			$424.00	0.00%	MCIT refund
County Support (52990)			$12,000.00	0.00%	non competitive annual reimbursement
BWSR Grant Stormwater (53090			$1,000.00	0.00%	competitive reimbursement
Total	**$35,364.99**	**$0.00**	**$25,624.00**		*

Expenses:	**Monthly Amount**				**Explanation**
Salaries/Benefits FICA/Med/PERA/LIFE/LTD/Hlth/WC(61000)	$10,920.56		$101,801.00	0.00%	reimbursed by Gov. DNR grant
MCIT insurance/work comp/liability (61500)			$2,216.00	0.00%	reimbursed by Gov. DNR grant
MHB board Per Diem (62680)	$300.00		$2,700.00	0.00%	reimbursed by Gov. DNR grant
Hotel/Meals/travel exp. (63340)			$300.00	0.00%	reimbursed by Gov. DNR grant
Commissioner Mileage (62720)	$80.50		$2,900.00	0.00%	reimbursed by Gov. DNR grant
Employee Mileage (63320)	$161.01		$4,400.00	0.00%	reimbursed by Gov. DNR grant
Professional Services (62990)	$525.00		$8,175.00	0.00%	CW account. Services
Office supplies/operations (64090)	$211.99		$1,400.00	0.00%	telphone calls + new phone and free conference call expense
Training & Registration Fees (63380)			$400.00	0.00%	reimbursed by Gov. DNR grant-
Total	**$12,199.06**		**$124,292.00**		

Governor's DNR grant is always $124K every year

LSOHC grant is around $6K to $8K every year

*The total under revenue does not reflect the $124K because it is a non-competitive grant, and it doesn't always fall in the fiscal year.

ORG / YR/PR	OBJECT / PROJ / JNL	EFF DATE	SRC	REF1	REF2	REF3	CHECK #	OB	AMOUNT	NET LEDGER BALANCE	NET BUDGET BALANCE
74	10001		Cash & Pooled Investments								
							SOY BALANCE			335,865.06	
							PER 01		-6,288.61	329,576.45	
							PER 02		57,758.77	387,335.22	
							PER 03		16,228.64	403,563.86	
							PER 04		-81,347.40	322,216.46	
							PER 05		33,024.65	355,241.11	
							PER 06		-20,528.25	334,712.86	
20/07	215	07/03/20	PRJ						-3,927.64	330,785.22	
20/07	603	07/14/20	APP	C0714					-138.00	330,647.22	
	C071420										
20/07	604	07/14/20	APP	A0714					-10,002.50	320,644.72	
	A071420										
20/07	682	07/17/20	PRJ						-3,960.69	316,684.03	
20/07	712	07/17/20	APP	VOID					50.00	316,734.03	
	A021219										
20/07	1168	07/21/20	APP	C0721					-1.44	316,732.59	
	C072120										
20/07	1169	07/21/20	APP	A0721					-664.26	316,068.33	
	A072120										
20/07	1472	07/24/20	GEN						35,345.00	351,413.33	
	ST OF MN		SYSTEM GENERATED DUE TO LINE								
20/07	1492	07/27/20	GNI	JUNE					-349.72	351,063.61	
	WF PCARD		SYSTEM GENERATED DUE TO LINE								
20/07	1497	07/17/20	GNI	JUNE					-24.99	351,038.62	
	BREM PCARD		SYSTEM GENERATED DUE TO LINE								
20/07	1570	07/28/20	APP	A0728					-380.50	350,658.12	
	A072820										
20/07	1573	07/28/20	GNI	130080	AmyG	37782			23.43	350,681.55	
	iNovah		SYSTEM GENERATED DUE TO LINE								
20/07	1676	07/31/20	PRJ						-3,087.23	347,594.32	
20/07	1956	07/31/20	GEN						-525.00	347,069.32	
	RECURRING		DUE TO / DUE FROM								
	LEDGER BALANCES --- DEBITS:					142,430.49	CREDITS:		-131,226.23	NET:	11,204.26

ORG / OBJECT / PROJ / YR/PR / JNL EFF DATE / SRC / REF1 / REF2 / REF3 / CHECK # / OB	AMOUNT	NET LEDGER BALANCE	NET BUDGET BALANCE
74 20050 Vouchers Payable			
SOY BALANCE		.00	
PER 05	-1,738.99	-1,738.99	
PER 06	1,738.99	.00	
20/07 346 07/07/20 API B 4826 W C071420	-138.00	-138.00	
20/07 600 07/14/20 API B 4845 W A071420	-10,002.50	-10,140.50	
20/07 603 07/14/20 APP C0714 C071420 AP CASH DISBURSEMENTS JOURNAL	138.00	-10,002.50	
20/07 604 07/14/20 APP A0714 A071420 AP CASH DISBURSEMENTS JOURNAL	10,002.50	.00	
20/07 685 07/21/20 API B 4857 W C072120	-1.44	-1.44	
20/07 712 07/17/20 APP VOID 20847 AP CASH DISBURSEMENTS JOURNAL	-50.00	-51.44	
20/07 937 07/21/20 API B 4863 W A072120	-614.26	-665.70	
20/07 1168 07/21/20 APP C0721 C072120 AP CASH DISBURSEMENTS JOURNAL	1.44	-664.26	
20/07 1169 07/21/20 APP A0721 A072120 AP CASH DISBURSEMENTS JOURNAL	664.26	.00	
20/07 1519 07/28/20 API B 4880 W A072820	-380.50	-380.50	
20/07 1570 07/28/20 APP A0728 A072820 AP CASH DISBURSEMENTS JOURNAL	380.50	.00	
LEDGER BALANCES --- DEBITS: 12,925.69 CREDITS: -12,925.69 NET:		.00	
74 38200 Encumbrances			
SOY BALANCE		.00	
PER 04	1,738.99	1,738.99	
PER 05	-1,738.99	.00	
PER 06	138.00	138.00	
20/07 346 07/07/20 POL B 4826 W C071420	-138.00	.00	
LEDGER BALANCES --- DEBITS: 1,876.99 CREDITS: -1,876.99 NET:		.00	

ORG / YR/PR	OBJECT / JNL EFF DATE	PROJ / SRC	REF1	REF2	REF3	CHECK #	OB	AMOUNT	NET LEDGER BALANCE	NET BUDGET BALANCE
74	38400	Expenditures								
							SOY BALANCE		.00	
							PER 01	18,408.61	18,408.61	
							PER 02	12,935.40	31,344.01	
							PER 03	10,662.86	42,006.87	
							PER 04	90,785.74	132,792.61	
							PER 05	11,339.06	144,131.67	
							PER 06	18,789.26	162,920.93	
20/07	215 07/03/20	PRJ PR0703	1200703	1200703				3,927.64	166,848.57	
	PAY070320 WARRANT=200703 RUN=1 BI-WEEKL									
20/07	346 07/07/20	API B 4826						138.00	166,986.57	
	W C071420									
20/07	600 07/14/20	API B 4845						10,002.50	176,989.07	
	W A071420									
20/07	682 07/17/20	PRJ PR0717	1200717	1200717				3,960.69	180,949.76	
	PAY071720 WARRANT=200717 RUN=1 BI-WEEKL									
20/07	685 07/21/20	API B 4857						1.44	180,951.20	
	W C072120									
20/07	937 07/21/20	API B 4863						614.26	181,565.46	
	W A072120									
20/07	1492 07/27/20	GNI JUNE						349.72	181,915.18	
	WF PCARD									
20/07	1497 07/17/20	GNI JUNE						24.99	181,940.17	
	BREM PCARD									
20/07	1519 07/28/20	API B 4880						380.50	182,320.67	
	W A072820									
20/07	1573 07/28/20	GNI 130080	AmyG	37782				-3.44	182,317.23	
	iNovah									
20/07	1676 07/31/20	PRJ PR0731	1200731	1200731				3,087.23	185,404.46	
	PAY073120 WARRANT=200731 RUN=1 BI-WEEKL									
20/07	1956 07/31/20	GEN						525.00	185,929.46	
	RECURRING									

LEDGER BALANCES --- DEBITS: 185,932.90 CREDITS: -3.44 NET: 185,929.46

ORG / YR/PR	OBJECT / JNL	PROJ / EFF DATE	SRC	REF1	REF2	REF3	CHECK #	OB	AMOUNT	NET LEDGER BALANCE	NET BUDGET BALANCE
74	38500		Revenues								
								SOY BALANCE		.00	
								PER 01	-12,120.00	-12,120.00	
								PER 02	-70,694.17	-82,814.17	
								PER 03	-26,891.50	-109,705.67	
								PER 04	-9,438.34	-119,144.01	
								PER 05	-42,624.72	-161,768.73	
20/07	1472	07/24/20	GEN						-35,345.00	-197,113.73	
	ST OF MN										
20/07	1573	07/28/20	GNI	130080	AmyG	37782			-19.99	-197,133.72	
	iNovah										
	LEDGER BALANCES --- DEBITS:					.00	CREDITS:	-197,133.72	NET:	-197,133.72	
74	38700		Budgetary Resv for Enc								
								SOY BALANCE		.00	
								PER 04	-1,738.99	-1,738.99	
								PER 05	1,738.99	.00	
								PER 06	-138.00	-138.00	
20/07	346	07/07/20	POL B	4826					138.00	.00	
	W C071420										
	LEDGER BALANCES --- DEBITS:					1,876.99	CREDITS:	-1,876.99	NET:	.00	
74830	53290		Natural Resources								
								REVISED BUDGET			.00
								PER 02	-24,394.17	-24,394.17	
								PER 03	-6,933.73	-31,327.90	
								PER 04	-9,438.34	-40,766.24	
								PER 05	-27,624.72	-68,390.96	
20/07	1472	07/24/20	GEN						-35,345.00	-103,735.96	
	ST OF MN	DNR4Q-20									
	LEDGER BALANCES --- DEBITS:					.00	CREDITS:	-103,735.96	NET:	-103,735.96	
74830	58400		MHB - Sales								
								REVISED BUDGET			.00
								PER 01	-120.00	-120.00	
								PER 03	-40.00	-160.00	
20/07	1573	07/28/20	GNI	130077	AmyG	37782			-19.99	-179.99	
	iNovah	GUIDE BOOK PURCHASE									

ORG / OBJECT / PROJ / YR/PR / JNL / EFF DATE / SRC / REF1 / REF2 / REF3 / CHECK # / OB	AMOUNT	NET LEDGER BALANCE	NET BUDGET BALANCE
LEDGER BALANCES --- DEBITS: .00 CREDITS: -179.99 NET:		-179.99	
74830 61000 Salaries & Wages - Regular			
REVISED BUDGET			.00
PER 01	7,949.42	7,949.42	
PER 02	5,362.08	13,311.50	
PER 03	5,362.08	18,673.58	
PER 04	5,362.08	24,035.66	
PER 05	5,362.08	29,397.74	
PER 06	5,362.08	34,759.82	
20/07 215 07/03/20 PRJ PR0703 1200703 1200703 1200	2,681.04	37,440.86	
PAY070320 WARRANT=200703 RUN=1 BI-WEEKL			
20/07 682 07/17/20 PRJ PR0717 1200717 1200717 1200	2,681.04	40,121.90	
PAY071720 WARRANT=200717 RUN=1 BI-WEEKL			
20/07 1676 07/31/20 PRJ PR0731 1200731 1200731 1200	2,681.04	42,802.94	
PAY073120 WARRANT=200731 RUN=1 BI-WEEKL			
LEDGER BALANCES --- DEBITS: 42,802.94 CREDITS: .00 NET:		42,802.94	
74830 61200 Active Insurance			
REVISED BUDGET			.00
PER 01	1,698.61	1,698.61	
PER 02	1,698.61	3,397.22	
PER 03	1,698.61	5,095.83	
PER 04	1,698.61	6,794.44	
PER 05	1,698.61	8,493.05	
PER 06	1,698.61	10,191.66	
20/07 215 07/03/20 PRJ PR0703 1200703 1200703 1200	860.28	11,051.94	
PAY070320 WARRANT=200703 RUN=1 BI-WEEKL			
20/07 682 07/17/20 PRJ PR0717 1200717 1200717 1200	838.33	11,890.27	
PAY071720 WARRANT=200717 RUN=1 BI-WEEKL			
LEDGER BALANCES --- DEBITS: 11,890.27 CREDITS: .00 NET:		11,890.27	
74830 61300 Employee Pension & FICA			
REVISED BUDGET			.00
PER 01	1,164.63	1,164.63	
PER 02	772.64	1,937.27	
PER 03	772.64	2,709.91	
PER 04	772.65	3,482.56	
PER 05	780.30	4,262.86	
PER 06	772.64	5,035.50	
20/07 215 07/03/20 PRJ PR0703 1200703 1200703 1200	386.32	5,421.82	

ORG / OBJECT / PROJ / YR/PR / JNL / EFF DATE / SRC / REF1 / REF2 / REF3 / CHECK # / OB	AMOUNT	NET LEDGER BALANCE	NET BUDGET BALANCE
PAY070320 WARRANT=200703 RUN=1 BI-WEEKL			
20/07 682 07/17/20 PRJ PR0717 1200717 1200717 1200	386.32	5,808.14	
PAY071720 WARRANT=200717 RUN=1 BI-WEEKL			
20/07 1676 07/31/20 PRJ PR0731 1200731 1200731 1200	406.19	6,214.33	
PAY073120 WARRANT=200731 RUN=1 BI-WEEKL			
LEDGER BALANCES --- DEBITS: 6,214.33 CREDITS: .00	NET:	6,214.33	
74830 62100 Telephone			
REVISED BUDGET			.00
PER 01	57.13	57.13	
PER 02	57.77	114.90	
PER 03	57.15	172.05	
PER 04	57.08	229.13	
PER 05	56.97	286.10	
PER 06	57.14	343.24	
20/07 682 07/17/20 PRJ PR0717 1200717 1200717 1200	55.00	398.24	
PAY071720 WARRANT=200717 RUN=1 BI-WEEKL			
20/07 685 07/21/20 API 006205 128260 23302	1.44	399.68	
W C072120 MONTHLY CALLING CONSOLIDATED TELECOM			
LEDGER BALANCES --- DEBITS: 399.68 CREDITS: .00	NET:	399.68	
74830 62680 Non-Employee Per Diems			
REVISED BUDGET			.00
PER 02	200.00	200.00	
PER 03	250.00	450.00	
PER 05	550.00	1,000.00	
PER 06	300.00	1,300.00	
20/07 1519 07/28/20 API 002809 128649 23440	50.00	1,350.00	
W A072820 MHB PER DIEM TINQUIST, DAVIN C			
20/07 1519 07/28/20 API 002534 128650 23430	50.00	1,400.00	
W A072820 MHB PER DIEM NEWLAND, DEAN			
20/07 1519 07/28/20 API 003356 128651 23427	50.00	1,450.00	
W A072820 TED VANKEMPEN MHB PER DIEM HUBBARD COUNTY TREAS			
20/07 1519 07/28/20 API 100532 128653 1924994	50.00	1,500.00	
W A072820 MIKE WILSON MHB PER DIEM MORRISON COUNTY AUDI			
20/07 1519 07/28/20 API 003257 128654 23426	50.00	1,550.00	
W A072820 MHB PER DIEM GAASVIG, CRAIG			
20/07 1519 07/28/20 API 001099 128655 23429	50.00	1,600.00	

ORG / OBJECT / PROJ / YR/PR / JNL EFF DATE / SRC / REF1 / REF2 / REF3 / CHECK # / OB	AMOUNT	NET LEDGER BALANCE	NET BUDGET BALANCE
W A072820 MHB PER DIEM MARCOTTE, ANNE			
LEDGER BALANCES --- DEBITS: 1,600.00 CREDITS: .00 NET:		1,600.00	
74830 62720 Non-Employee Mileage			
REVISED BUDGET			.00
PER 02	263.35	263.35	
PER 06	46.00	309.35	
20/07 1519 07/28/20 API 101580 128652 23441	80.50	389.85	
W A072820 MHB MILEAGE WILSON, MICHAEL			
LEDGER BALANCES --- DEBITS: 389.85 CREDITS: .00 NET:		389.85	
74830 62990 Prof. & Tech. Fee - Other			
REVISED BUDGET			.00
PER 01	7,315.00	7,315.00	
PER 02	2,029.65	9,344.65	
PER 03	1,493.62	10,838.27	
PER 04	82,566.13	93,404.40	
PER 05	1,104.00	94,508.40	
PER 06	10,525.00	105,033.40	
20/07 600 07/14/20 API 101649 127938 1924690	6,030.50	111,063.90	
W A071420 2ND QUARTER 2020 WEST INVOICE WEST COMMUNICATIONS			
20/07 600 07/14/20 API 003534 128028 23267	3,972.00	115,035.90	
W A071420 2020 RIVER SIGN PROJECT FISHING THE WILDSIDE			
20/07 937 07/21/20 API 009999 128331 23378	614.26	115,650.16	
W A072120 TNC INVOICE 5 AWARD ID A105730 Unknown			
20/07 1956 07/31/20 GEN	525.00	116,175.16	
RECURRING FINANCIAL SERVICE			
LEDGER BALANCES --- DEBITS: 116,175.16 CREDITS: .00 NET:		116,175.16	
74830 63320 Employee Mileage			
REVISED BUDGET			.00
PER 01	223.82	223.82	
PER 02	192.51	416.33	
PER 03	478.98	895.31	
PER 04	154.21	1,049.52	
20/07 1492 07/27/20 GNI JUNE	7.82	1,057.34	
WF PCARD 1434 - signage dropoff Lum Par TIM TERRILL-OOP			
20/07 1492 07/27/20 GNI JUNE	34.67	1,092.01	

ORG / YR/PR	OBJECT / JNL EFF DATE	PROJ / SRC	REF1	REF2	REF3	CHECK #	OB	AMOUNT	NET LEDGER BALANCE	NET BUDGET BALANCE
	WF PCARD	1434 - signs to Aitkin county								
		TIM TERRILL-OOP								
20/07	1492 07/27/20	GNI JUNE						89.13	1,181.14	
	WF PCARD	1434 - interview Itasca Park								
		TIM TERRILL-OOP								
20/07	1492 07/27/20	GNI JUNE						71.88	1,253.02	
	WF PCARD	1434 - MHB filmaking in Bena								
		TIM TERRILL-OOP								
20/07	1492 07/27/20	GNI JUNE						111.55	1,364.57	
	WF PCARD	1434 - recr signage discuss								
		TIM TERRILL-OOP								
20/07	1492 07/27/20	GNI JUNE						34.67	1,399.24	
	WF PCARD	1434 - signs CW State Park								
		TIM TERRILL-OOP								
	LEDGER BALANCES --- DEBITS:		1,399.24	CREDITS:	.00			NET:	1,399.24	
74830	64090	Office Supplies								
				REVISED BUDGET						.00
				PER 02				134.42	134.42	
				PER 04				174.98	309.40	
				PER 05				1,787.10	2,096.50	
				PER 06				27.79	2,124.29	
20/07	346 07/07/20	API 002332	20974001	127504		1924652		138.00	2,262.29	
	W C071420	CISCO IP PHONE		ARCAS TECHNOLOGY INC						
20/07	1497 07/17/20	GNI JUNE						24.99	2,287.28	
	BREM PCARD	monthly videoconference fee								
		TIM TERRILL - CONFERENCECALLSERVICES								
20/07	1573 07/28/20	GNI 130079	AmyG	37782				-3.44	2,283.84	
	iNovah	GUIDE BOOK SHIPPING								
	LEDGER BALANCES --- DEBITS:		2,287.28	CREDITS:	-3.44			NET:	2,283.84	
	GRAND TOTAL --- DEBITS:		528,201.81	CREDITS:	-448,962.45			NET:	79,239.36	

73 Records printed

** END OF REPORT - Generated by Korie Bedard **

Planning and Zoning

GBA Variance- Robert & Heidi Blair

THE GREATER BEMIDJI AREA
JOINT PLANNING BOARD

PLANNING CASE: V-20-31.00879.00	**JPC MEETING DATE:** July 23rd, 2020
APPLICANT: Robert & Heidi Blair 906 Birchmont Beach Rd. NE	**60-DAY RULE DATE:** August 29th, 2020
PROCEEDING: Variance for setbacks, impervious surface coverage, and to build on a substandard lot of record	**ZONING DISTRICT:** (R-3) Suburban Residential and Shoreland Overlay
PREPARED BY: Jamin Carlson Assistant Planner	**EXHIBITS:** Zoning Map, Aerial Map, Application, Site Plan, Supporting Documentation

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PLANNING REPORT

I. SUMMARY OF REQUEST

Robert & Heidi Blair are seeking a variance in order to construct an addition on to the existing single-family home along with adding a second level floor to the existing detached garage on a substandard lot of record located at 906 Birchmont Beach Rd. NE; parcel 31.00879.00 within Northern Township. This parcel is located within the (R-3) Suburban Residential Unsewered Zoning District and Shoreland Overlay. The requested variances are as follows:

1. A reduction of 895 square feet in lot size per the Section 901 requirement of 30,000 square feet;
2. A reduction of 19.86 feet in lot width per Section 901 requirement of 100 feet;
3. A reduction of 48 feet for the OHWL setback per Section 901 requirement of 100 feet;
4. An additional 4.8% or 1,404 square feet of impervious surface coverage above the maximum allowed 25% throughout the property per Section 901; and
5. A setback reduction of nine and eight-tenths (9.8) from the required 10 feet from east side yard lot line for the attached garage.

II. BACKGROUND

The Applicant, Surveyor, and Architect met with staff out on site to discuss options for their proposal of an addition to their existing house and adding a storage area above their current detached garage that would include a new roof line. The lot is currently developed with a nonconforming house that is in close proximity to Lake Bemidji and garage that is close to the east side lot line. The Applicants have had problems with the current structures leaking due to poor roof design. They are also looking to add a main floor bathroom, bedroom, and an enclosed entrance within the proposed addition.

III. DEVELOPMENT SUMMARY

SITE DEVELOPMENT	PROPOSED	REQUIRED/ALLOWED
Section 901 Lot Size	**29,105 sq. ft.**	30,000 sq. ft.
Section 901 Lot Width	**80.14 ft.**	100 ft.
Proposed Impervious Surface	**29.8%**	25%
Front Yard/OHWL Setback	**52 ft.**	100 ft.
Side Yard Setback (East) Garage	**0.2 ft.**	10 ft.
Side Yard Setback (West) House	10 ft.	10 ft.
Height House	24.5 ft.	30 ft.
Height Garage	< 25 ft.	25 ft.

IV. DISCUSSION/DEVELOPMENT ANALYSIS

Planning Considerations

Variances should only be granted when they are in harmony with the general purpose of zoning ordinances or consistent with the comprehensive plan. A practical difficulty is the legal standard for consideration of variances. An applicant can demonstrate a practical difficulty when their proposal is reasonable, will not alter the essential character of the neighborhood, and is caused by a unique circumstance related to the property not directly caused by the land owner. Economics and cost can be a factor of consideration, but alone does not constitute as a practical difficulty.

Existing Conditions

This is an existing substandard lot of record consisting of a house, detached garage, patios, walkways and a bituminous driveway. The current house has been added onto in the past and those additions have produced some difficulties for the current owners with roof leaks and ice dams amongst other complications to the inside of the house. Note the pictures and added documentation that are included in the packet.

Temporary Easement

The Applicants have already secured a temporary easement running until 8/15/2022 for the east portion of the garage area onto the neighbor's property in order to complete the garage storage area if the variance is granted. Note: the easement is included in the packet as well.

Septic System

The existing mound system will need to have a compliance inspection completed to make sure the system is functioning and sized correctly for the structure as well as the addition. The mound system shall comply with Section 801 of the JPB Zoning & Subdivision Ordinance and Minnesota Rules Chapters 7080 through 7083.

Landscaping/Pervious Surface

Staff would recommend that the Applicant install a gutter system on the current structures along with the additions to direct stormwater towards a mitigation system such as raingardens or even a pervious pavement system in lieu of concrete or bituminous surface. This will prevent runoff from entering Lake Bemidji. The garage will have the roof peak changed to run a north-south configuration and will be guttered and directed into a mitigation system. Existing garage roof lines, which run east to west, have two-thirds (2/3) of the stormwater running directly over the mound system and the new design will reroute stormwater away from the mound system. The site plans show that the current concrete walkway from the driveway will be reduced in width as well. The Applicants will reduce their overall impervious surface footprint by 60 square feet, but will be over the 25% maximum or 1,404 square feet and this overage will need to be mitigated per Section 914 of the Ordinance.

Mississippi Headwaters Board (MHB)

The Applicants must have the variance certified by the Mississippi Headwaters Board prior to any land-use permit being granted.

Neighborhood Comment

There was not any neighborhood input at the time of writing the report. The Applicants submitted a letter that was distributed around their neighborhood with 12 signatures supporting the variance.

PROPOSED VARIANCES:

1. Section 402 D./Section 901B.: Lot Width (substandard lot of record)
2. Section 402 D./Section 901A: Lot Area (substandard lot of record)
3. Section 402 D./Section 901D: Side Yard Setback (substandard structures)
3. Section 402 D./Section 901 C.: Maximum Impervious Surface
4. Section 901 D. 1.: Setback from OHW: (substandard structure)
5. Section 501: Expansion of principal and accessory structures

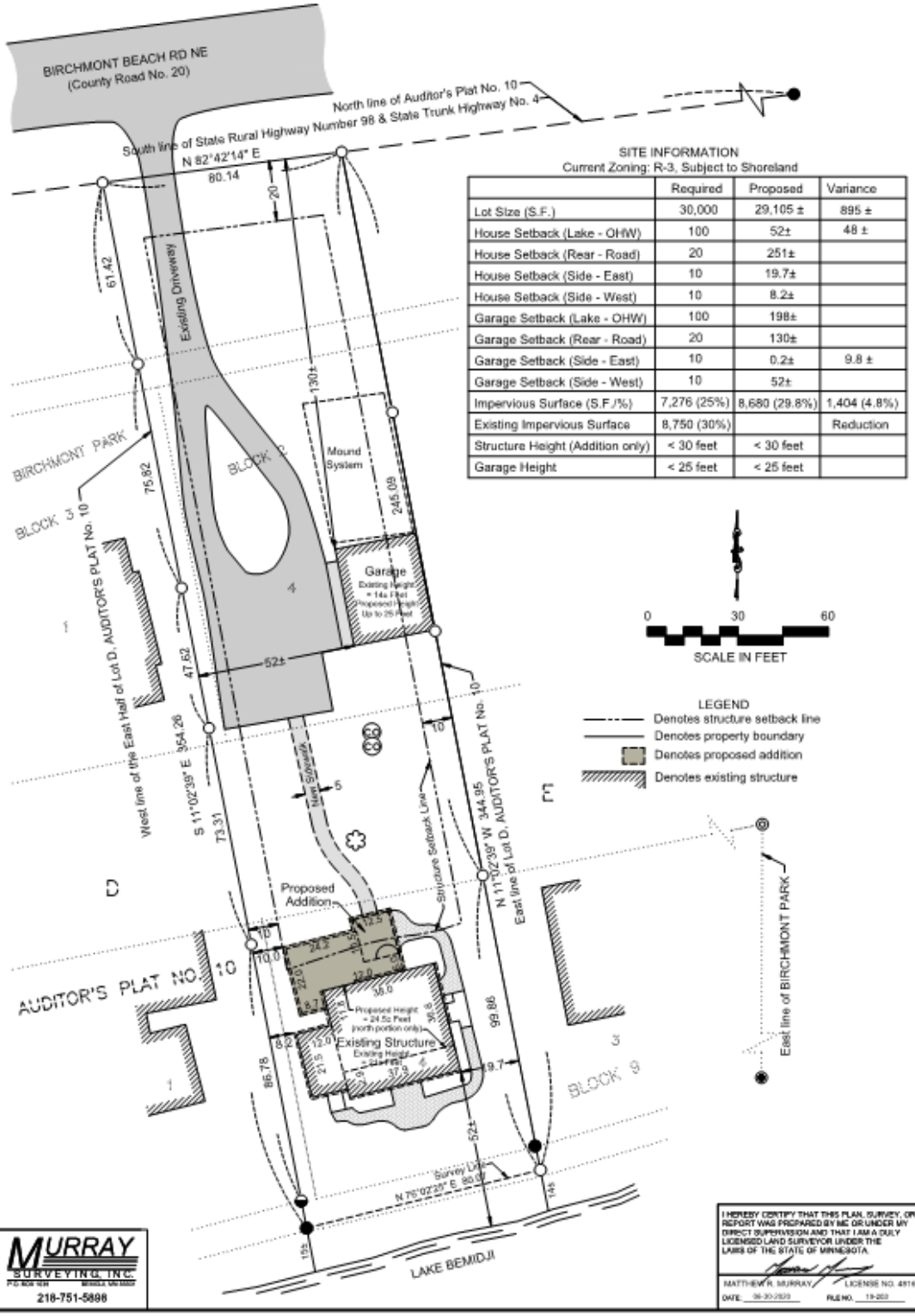
SITE PLAN

APPLICATION FOR VARIANCE

SHEET 1 OF 2 SHEETS

Parcel Tax ID No: 310087900

Address: 906 Birchmont Beach RD NE



SITE INFORMATION

Current Zoning: R-3, Subject to Shoreland

	Required	Proposed	Variance
Lot Size (S.F.)	30,000	29,105 ±	895 ±
House Setback (Lake - OHW)	100	52±	48 ±
House Setback (Rear - Road)	20	251±	
House Setback (Side - East)	10	19.7±	
House Setback (Side - West)	10	8.2±	
Garage Setback (Lake - OHW)	100	198±	
Garage Setback (Rear - Road)	20	130±	
Garage Setback (Side - East)	10	0.2±	9.8 ±
Garage Setback (Side - West)	10	52±	
Impervious Surface (S.F./%)	7,276 (25%)	8,680 (29.8%)	1,404 (4.8%)
Existing Impervious Surface	8,750 (30%)		Reduction
Structure Height (Addition only)	< 30 feet	< 30 feet	
Garage Height	< 25 feet	< 25 feet	

LEGEND

- Denotes structure setback line
- Denotes property boundary
- Denotes proposed addition
- Denotes existing structure

MURRAY SURVEYING, INC.
PO BOX 1636 BEMIDJI, MN 56601
218-751-5888

I HEREBY CERTIFY THAT THIS PLAN, SURVEY, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

MATTHEW R. MURRAY, LICENSE NO. 49149

DATE 06-30-2020 FILE NO. 19-203

Comprehensive Plan References:

The newly adopted Greater Bemidji Area Comprehensive Plan has identified a few objectives and strategies that supports the variance request and is in keeping with the spirit, purpose and intent of the Plan.

Land Use Objective 4.1: Preserve the Quality Residential Neighborhoods

Identify specific redevelopment opportunities and promote revitalization while maintaining character. Mapping of existing neighborhoods can provide a clearer boundary to ensure preservation. This can also aid in the development of form-based zoning to allow redevelopment of existing nonconforming structures.

Natural Resources Objective 11.2 Preserve and Enhance Water Quality

The protection of water quality is becoming increasingly important in all-natural resource environments. In an area that thrives on a strong connection to water and Mississippi River, water quality protection is key to preserving and improving a high quality of life standard that is so attractive to residents and visitors.

> **Strategy #2: Use shoreland restoration incentives and demonstrate success on public and private property to increase natural shoreland.** Encourage shoreland restoration projects through incentives or flexibility could potentially reduce shoreland variances. Displaying the benefits of shoreland restoration can increase awareness and understanding of the process that could result in a positive impact on shoreland.

Zoning Ordinance References

Article VIII: Sanitation Standards
Section 901: Bulk Density and Lot Sizes
Section 903: Nonconforming Structures Substandard in Shoreland Overlay
Section 914: Stormwater Management

V. RECOMMENDATION & FINDINGS

Staff recommends approval of five (5) variances in order to add on to the current principle structure and adding a floor to the detached garage at 906 Birchmont Beach Rd NE. The variances are as follows:

1. A reduction of 895 square feet in lot size per the Section 901 requirement of 30,000 square feet;
2. A reduction of 19.86 feet in lot width per Section 901 requirement of 100 feet;
3. A reduction of 48 feet for the OHWL setback per Section 901 requirement of 100 feet;
4. An additional 4.8% or 1,404 square feet of impervious surface coverage above the maximum allowed 25% throughout the property per Section 901; and
5. A setback reduction of nine and eight-tenths (9.8) from the required 10 feet from east side yard lot line for the attached garage.

Approval recommended with the following findings of fact and conditions:

Conditions

1. Additions will be staked by professional surveyor to mitigate setback encroachment.
2. An erosion control plan shall be submitted and be in place before any construction commences on the property.
3. A stormwater mitigation plan shall be provided by the landowner from a design professional to be reviewed and approved by the Planning Director before a land use permit can be issued.
4. JPB site verification form and fee shall be submitted prior to construction.
5. A land use permit shall be obtained prior to construction and demolition. A land-use permit shall not be granted or obtained until the Mississippi Headwaters Board certifies or approves the variance.
6. A septic compliance inspection report shall be obtained. If the system needs to replaced or upgraded, the property owners have one (1) year to get the SSTS system into compliance. The SSTS system shall comply with Article VIII of the JPB Zoning & Subdivision Ordinance and Minnesota Rules Chapters 7080 through 7083.
7. The variance shall expire and become void if the project is not substantially started within twelve (12) months from its date of issuance. A substantial start means more than preliminary steps have been taken such that preparations to initiate the use are mostly complete. The JPB may, upon written request of the owner, grant an extension to this deadline not to exceed an additional twelve (12) months.

Findings

1. Has the applicant demonstrated a practical difficulty?

Yes. This is an existing lot of record that is currently developed, the surrounding area is heavily developed on substandard lots. Without a variance, the lot could not be improved or further developed.

2. Are there exceptional circumstances, unique to this property, which have not been created by the land owner?

Yes. These are legal non-conforming structures that were not built by the current landowners and this is a previously platted and developed lot of record. No additions to the residence or garage can be permitted without approval of a variance.

3. Can the variance be granted and that such action will be in keeping with the spirit, purpose and intent of the Zoning Ordinance?

Yes. The majority of homes in this area are legal non-conforming structures on legal non-conforming lots. Adding on to the existing house and detached garage would be keeping with the character of the neighborhood and does not compromise the spirit, purpose and intent of the Zoning Ordinance.

4. Can the variance be granted without altering the essential character of the surrounding area?

Yes. The proposed variance request would fit well within the surrounding area and would not alter the character.

Plans

PROPOSED VARIANCES:

1. Section 402 D./Section 901B.: Lot Width (substandard lot of record)
2. Section 402 D./Section 901A: Lot Area (substandard lot of record)
3. Section 402 D./Section 901D: Side Yard Setback (substandard structures)
3. Section 402 D./Section 901 C.: Maximum Impervious Surface
4. Section 901 D. 1.: Setback from OHW: (substandard structure)
5. Section 501: Expansion of principal and accessory structures

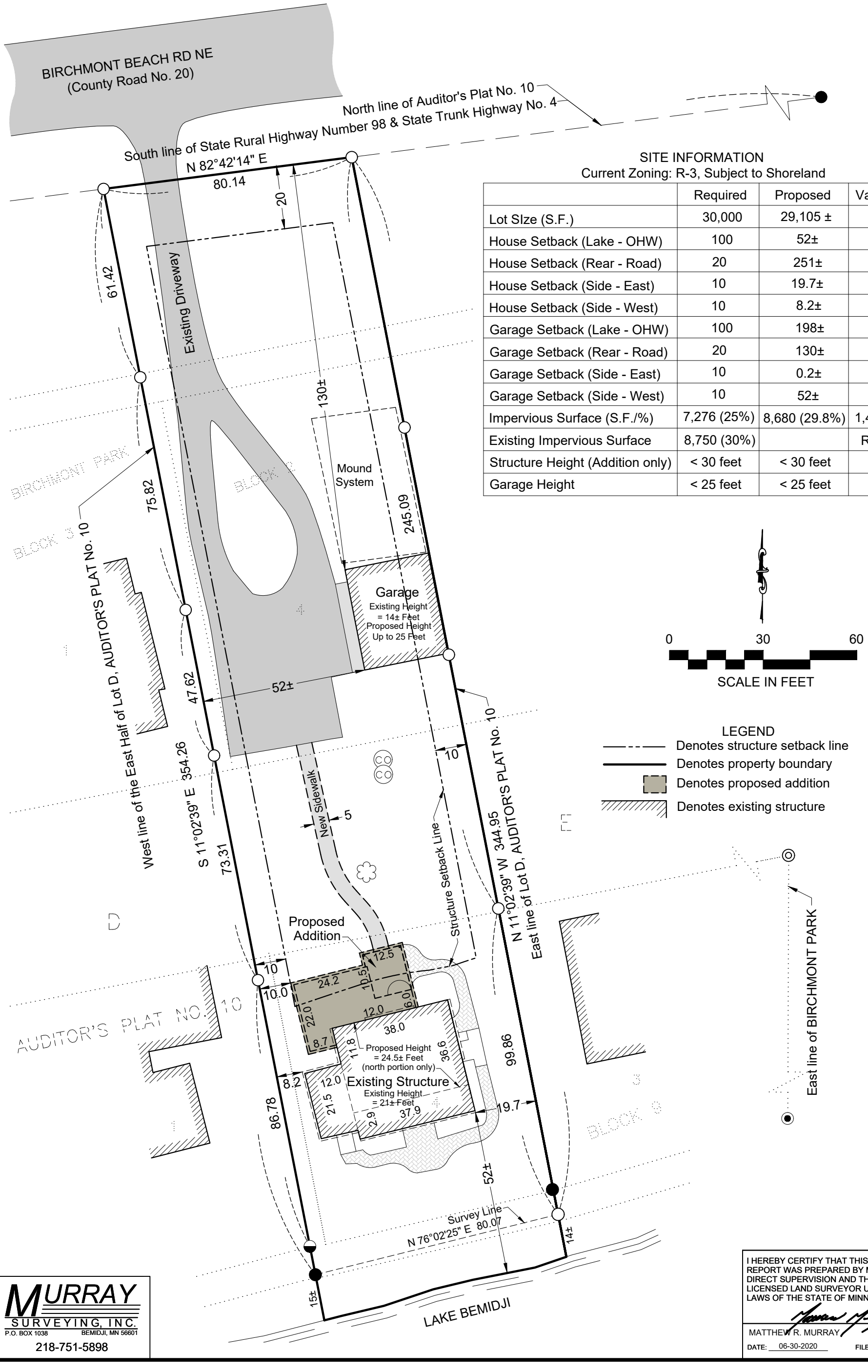
SITE PLAN

APPLICATION FOR VARIANCE

SHEET 1 OF 2 SHEETS

Parcel Tax ID No: 310087900

Address: 906 Birchmont Beach RD NE



SITE INFORMATION

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Garage Height	< 25 feet	< 25 feet	

LEGEND

- Denotes structure setback line
- Denotes property boundary
- Denotes proposed addition
- Denotes existing structure

MURRAY SURVEYING, INC.
P.O. BOX 1038 BEMIDJI, MN 56601
218-751-5898

I HEREBY CERTIFY THAT THIS PLAN, SURVEY, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

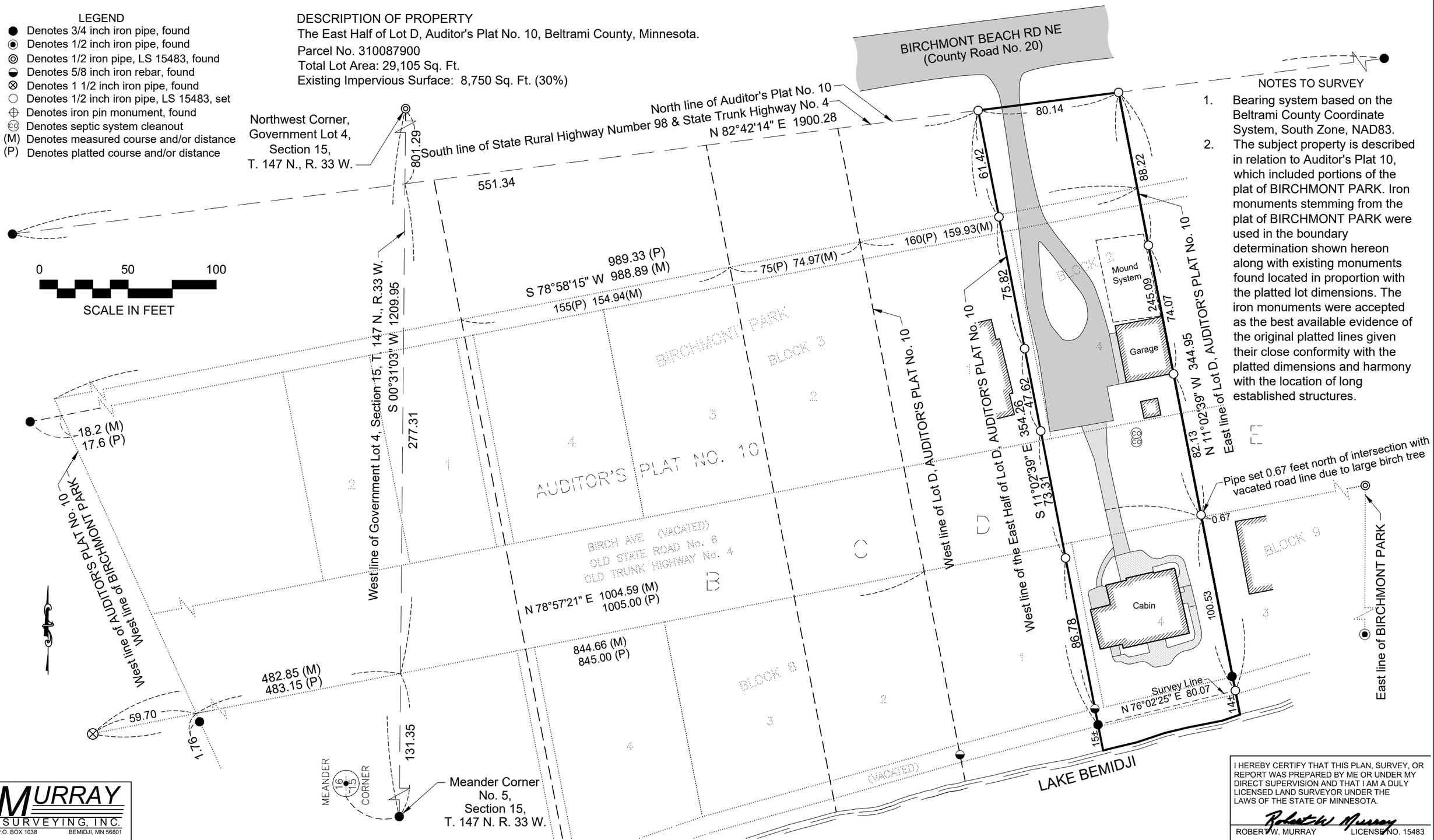
MATTHEW R. MURRAY LICENSE NO. 48168

DATE: 06-30-2020 FILE NO. 19-203

CERTIFICATE OF SURVEY

LEGEND
- ● Denotes 3/4 inch iron pipe, found
- ◉ Denotes 1/2 inch iron pipe, found
- ◎ Denotes 1/2 iron pipe, LS 15483, found
- ◒ Denotes 5/8 inch iron rebar, found
- ⊗ Denotes 1 1/2 inch iron pipe, found
- ○ Denotes 1/2 inch iron pipe, LS 15483, set
- ⊕ Denotes iron pin monument, found
- ⓒ Denotes septic system cleanout
- (M) Denotes measured course and/or distance
- (P) Denotes platted course and/or distance

DESCRIPTION OF PROPERTY
The East Half of Lot D, Auditor's Plat No. 10, Beltrami County, Minnesota.
Parcel No. 310087900
Total Lot Area: 29,105 Sq. Ft.
Existing Impervious Surface: 8,750 Sq. Ft. (30%)



NOTES TO SURVEY
1. Bearing system based on the Beltrami County Coordinate System, South Zone, NAD83.
2. The subject property is described in relation to Auditor's Plat 10, which included portions of the plat of BIRCHMONT PARK. Iron monuments stemming from the plat of BIRCHMONT PARK were used in the boundary determination shown hereon along with existing monuments found located in proportion with the platted lot dimensions. The iron monuments were accepted as the best available evidence of the original platted lines given their close conformity with the platted dimensions and harmony with the location of long established structures.

MURRAY
SURVEYING, INC.
P.O. BOX 1038 BEMIDJI, MN 56601
218-751-5898

I HEREBY CERTIFY THAT THIS PLAN, SURVEY, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

Robert W. Murray

ROBERT W. MURRAY LICENSE NO. 15483

DATE: 10-10-2019 FILE NO. 19-203

EASEMENT

Date: June 29, 2020

For valuable consideration, ROGER A. LARSON and KIMBERLY A. HEGSTROM, spouses married to each other ("Grantor"), hereby grants and convey to ROBERT J. BLAIR and HEIDI BLAIR, spouses married to each other, ("Grantee") their successors and assigns, Easements over real property in Beltrami County, Minnesota, described as follows:

A Temporary Easement over, under and across part of Lot E, Auditor's Plat 10, for any use consistent with the replacement, construction, or reconstruction of a structure on Grantees property. The location of this temporary easement is shown on attached Exhibit B and is described as follows:

> Commencing at the northwest corner of said Lot E, Auditor's Plat 10; thence South 11°02'39" East, bearing based on the Beltrami County Coordinate System, South Zone, along the west line of said Lot E, a distance of 122.20 feet to the point of beginning of the easement to be described; thence North 78°57'21" East a distance of 7.00 feet; thence South 11°02'39" East a distance of 46.79 feet; thence South 78°57'21" West a distance of 7.00 feet to the intersection with said west line of Lot E; thence North 11°02'39" West, along said west line of Lot E, a distance of 46.79 feet to the point of beginning (the "Easement Area").

This Temporary Easement shall expire on August 15, 2022;

AND,

An appurtenant Easement permitting Grantee the right to enter Grantor's property for the purpose of maintaining and repairing the structure benefitted by said Temporary Easement.

Grantor

Roger A Larson

ROGER A. LARSON

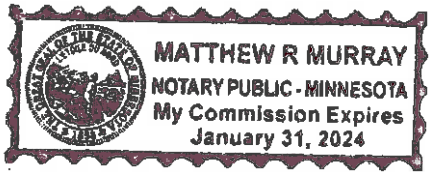
Kim A Hegstrom

ROGER A. LARSON

Kim A Hegstrom KH

State of Minnesota, County of Beltrami

This instrument was acknowledged before me on June 29, 2020 by , ROGER A. LARSON and KIMBERLY A. HEGSTROM, spouses married to each other.

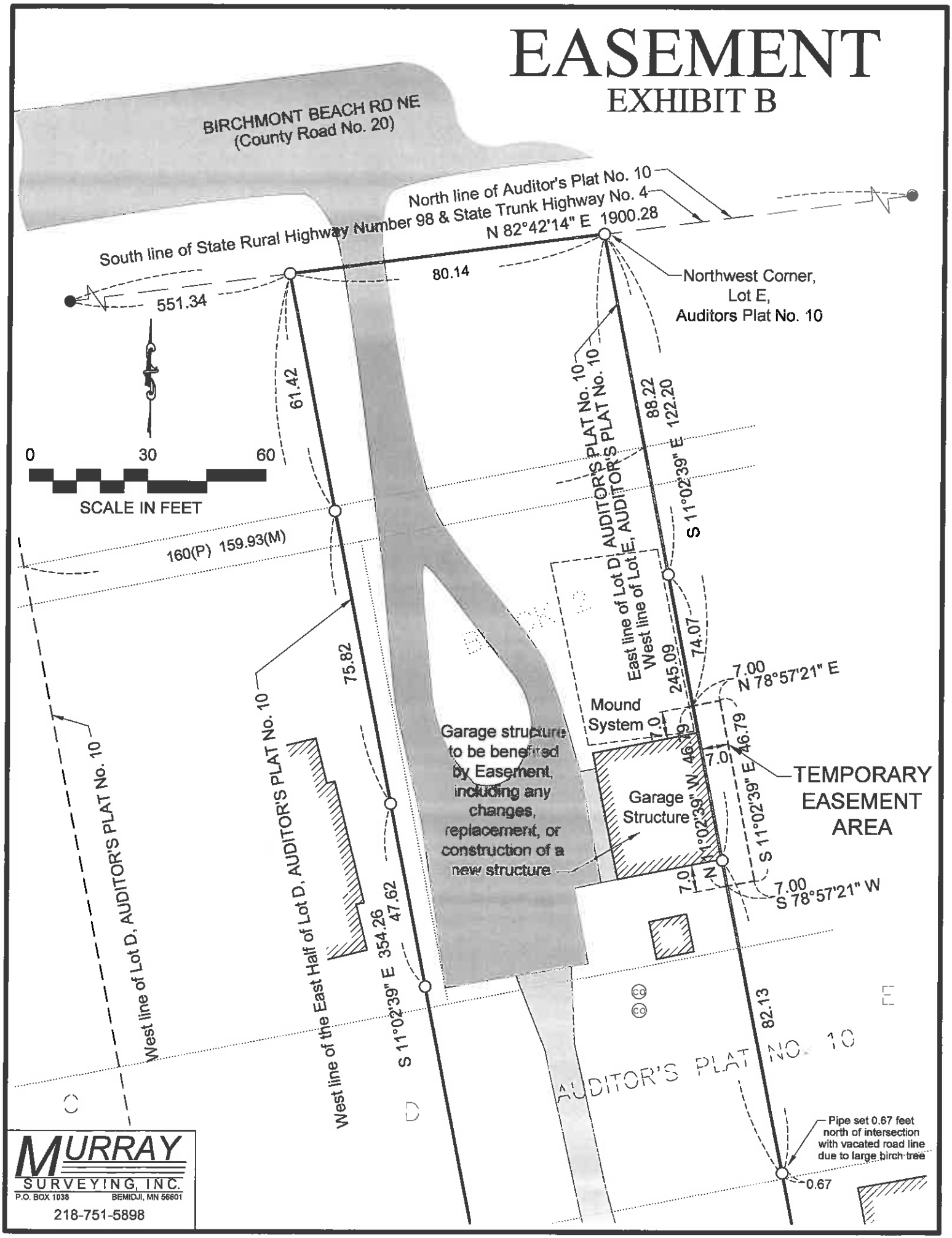


Matthew R. Murray
Notary
My commission expires: January 31, 2024

This instrument was drafted by:

Murray Surveying, Inc.
304 Third Street NW
Bemidji, MN 56601

EASEMENT
EXHIBIT B



MURRAY
SURVEYING, INC.
P.O. BOX 1038 BEMIDJI, MN 56601
218-751-5898

Applications

Greater Bemidji Area Joint Planning Board

Application for Variance

OFFICE USE ONLY
Complete Application Rec'd 6/30/2020
Payment Rec'd 6/30/2020
Field Checked 7-2-2020
Zoning District R-3 (Shoreland)
Date Permitted
Permit Number 2020-24
Comments

Please complete this application carefully and completely. PLEASE PRINT. Failure to fill in all of the required information may result in a delay of processing your application.

A fee of $ 500 made payable to the **City of Bemidji** must accompany this application. Additional escrow or verification fees may apply for approved projects.

An escrow of $ 500 made payable to the **City of Bemidji** must accompany this application. Additional escrow or verification fees may apply for approved projects.

An escrow account is established as indicated above to cover technical and legal expenses incurred by the Joint Planning Board (JPB) as part of the plan review. The applicant is responsible for all costs incurred by the JPB during plan review. If the escrow amount drops below 10% of the original deposit amount the JPB may require submittal of an additional escrow deposit sufficient to cover any anticipated expenses. Upon determination by the JPB that the project is complete or expired, the JPB will return the remaining escrow deposit to the applicant.

APPLICANT DATA

NAME OF APPLICANT: Robert and Heidi Blair EMAIL: heidiblair@msn.com
MAILING ADDRESS: 3435 30th St NE, Forest River, ND 58233
SITE ADDRESS: 906 Birchmont Beach Rd NE PARCEL: 31008790O
PHONE NUMBER: WORK 218-779-2620 HOME
CONTRACTOR NAME: Murray Surveying, Inc PHONE: 218-751-5898

Does your property contain low areas, wetlands, or areas with standing water? ☐ Yes ☒ No If Yes, do you intend to drain, fill or otherwise alter this area for any reason?
Explain

OFFICE USE ONLY

Property Dimensions: Width 80.14 ft Depth 344 ft Total area 29,105 sq ft/acres
Is there one acre of contiguous land on the property? ☐ Yes ☒ No
Have there been any Variances/Use Permits granted on this property? ☐ Yes ☐ No ☐ Don't Know ☐ Attach copies

Is property within 1000 feet of a public water? ☒ Yes ☐ No Is property in an airport zone? ☐ Yes ☒ No
Septic Data: Year Installed: 8-19-93 Last Compliance Inspection: N/A
☒ Pass Compliance ☐ Fail Compliance ☐ Notarized Stipulation ☐ Other

Municipal Services: Water ☐ Yes ☒ No Sewer: ☐ Yes ☒ No If no, is hook up possible? ☐ Yes ☒ No

EXPLANATION OF REQUEST FOR VARIANCE

What specific standard(s) are you requesting variance from (lot size, setbacks, etc.)? **Display on site plan.**

Please see attached Site Plan for itemized Standards from which a variance is being requested.

What standard(s) or measurement(s) are you requesting (be specific)? **Display on site plan.**

Please see attached Site Plan for table containing itemized measurements.

Describe the existing use of your property:

Residential

Will the use of your property change with the variance? ☐ Yes ☒ No

Will the granting of a variance impact the character of the surrounding properties? ☐ Yes ☒ No ☐ Unknown

Explain This application proposes alterations to existing structures which would not impact the overall character of the surrounding properties

Are there unavoidable physical or topographical features (wetlands, buildings, roads, etc.) on your property that severely limit your construction site options? ☒ Yes ☐ No Explain

The structures to be altered/expanded are existing

Does the design or floor plan of your building severely limit your construction options? ☐ Yes ☒ No

The existing configuration of the structures and property does.

Are there construction options or alternatives that may eliminate the need for a variance? ☐ Yes ☒ No

Explain Rebuilding the exact same structure footprints would not fix the issues with the existing roof or address the needs further prompting this variance application (See Summary of Variance Request)

Explain the practical difficulty that exists with your request:

(1) The need to fix roof on nonconforming structure by correcting/adding a pitch to flat segments of the roof (2) The need to modify/expand the existing main floor bedroom to make it suitable for today's use and to add an enclosed entrance, (3) The need to replace roof on garage and add storage space

Assuming that a practical difficulty is demonstrated, and a variance justified, what measures are you willing to take to mitigate the impact of development on your property (remove other buildings, vegetative screens, etc.)?

The existing shed south of the garage will be removed.

The overall impervious surface will be reduced.

(Use additional sheets if necessary)

STRUCTURAL/CONSTRUCTION DATA (if applicable)

Proposed Structure/Use:
- New Single Family Residence _____
- Garage (Attached) _____
- Accessory Building/Multi Family Dwelling _____
- Commercial Building _____
- Building Alteration X
- Detached Garage X (Alteration)
- Other (Explain) _____

House
Structure Dimension(s): Width 50.7 +/- ft. Length 58.7 +/- ft. Height (to roof peak) up to 30 (25 feet per current plans) ft. Total S.F. 2,175 +/- enclosed (overall)

Garage
Structure Dimension(s): Width 27.2 +/- ft. Length 32.7 +/- ft. Height (to roof peak) 25 ft. Total S.F. 890 +/- (overall)

Structure Dimension(s): Width _____ ft. Length _____ ft. Height (to roof peak) _____ ft. Total S.F. _____

Total number of bedrooms after construction: ___

Will there be any commercial use of this property after construction? ☐ Yes ☒ No

Estimated Cost of construction: $ TBD

Submit a complete sketch of your property drawn to scale with this application showing all buildings, proposed and existing, setbacks, wells, septic and accesses.

ALL APPLICANTS MUST SIGN BELOW

I hereby certify that I am the owner or authorized agent of the owner of the above described property and that all uses will conform to the provisions of the Greater Bemidji Area Zoning and Subdivision Regulations. I further certify that I will comply with all conditions placed upon this permit should this application be approved. Intentional or unintentional falsification of this application or any attachments thereto will serve to make this application and any resultant permit invalid. I also authorize Greater Bemidji Area Joint Planning staff to inspect the property during review of this application and subsequent construction during reasonable times of the day.

Applicant: [signature] Applicant Heidi Blair

Date: 6-20-20

OFFICE USE ONLY

Reviewed by [signature] Date 7-2-2020 Complete Application ☑ Yes ☐ No

COMPLETED FORMS CAN BE SUBMITTED AT CITY HALL, 317 4TH STREET NW, LOWER LEVEL

MURRAY
SURVEYING, INC.
ROBERT W. MURRAY
REGISTERED LAND SURVEYOR
P.O. BOX 1038
305 AMERICA AVENUE
BEMIDJI, MINNESOTA 56601
BUSINESS (218) 751-5898
FAX (218) 444-9611

June 30, 2020

Casey Mai and Jamin Carlson
Joint Planning Board
317 4th Street NW
Bemidji, MN 56601

Re: Blair Variance Application – Parcel No. 310087900

Dear Casey and Jamin:

Enclosed please find the following items related to the Application for Variance by Robert and Heidi Blair for their property located at 906 Birchmont Beach Rd NE (Parcel No. 310087900):

1. Signed application and application fee
2. Certificate of Survey documenting current site conditions
3. Site Plan documenting proposed site conditions and proposed variances
4. Written support for the Blair variance application signed by 13 owners of properties adjoining and near the Blairs from 570 Birchmont Beach Rd NE to 926 Birchmont Beach Rd NE.
5. Copy of Easement granted by the neighbors adjacent to the Blairs easterly boundary line (Robert Larson and Kimberly Hegstrom) granting a temporary easement for the reconstruction of the garage and an easement to maintain the garage after it is reconstructed.
6. Copy of record deed to property.
7. A summary of the variance request describing the reason for each variance being sought.
8. Photos of current roof issues associated with ice dams and leaking.

The three primary goals associated with the Blair variance application are as follows:

1. To replace the roof which is subject to significant ice dams and leaking. This involves changing the pitch to eliminate the flat roof segments.
2. To expand away from the lake by adding a suitable bathroom and bedroom to the main floor as well as an enclosed entrance. A large portion of the expansion area is existing impervious surface. The overall impervious surface coverage will be reduced by this project.
3. To reconstruct the existing garage, including the addition of storage area above the garage while meeting the side wall height and overall height limitations for accessory structures as set forth under the JPB Ordinance. An easement has been granted by the neighbor to facilitate construction because the neighbors would like to see the garage remain in its current location.

Please let me know if you have any questions.

Thank you,

Matt Murray

906 Birchmont Beach Rd NE

We have no objection to Bob and Heidi Blair putting an addition on their lake home going straight out the back side (North) towards the road. The addition would include enlarging a small bedroom to a useable size with a closet and bathroom, adding an entryway and covered patio entrance, keeping within the set-back and height restrictions. Also, increasing the garage height, again keeping within the height restrictions set-forth by the board.

ok Dan Nikkelson 832 Birchmont Beach Rd NE
ok Jolene Nikkelson " " " "
Ok B Mead W. Nord 820 Birchmont Beach Rd
OK Tina Rattger 814 Birchmont Bch Rd
Sally Rattger 570 Birchmont Bch Rd.
OK Randy Rattger 814 Birchmont Bch Rd
ok Mark Haley 826 Birchmont Bch Rd
OK Bonita Nally 826 Birchmont Beach Rd NE
OK Kim Hagston 918 Birchmont Beach RD NE
ok Roger ALARK 918 Birchmont Beach Rd NE
OK Mitch Wawra 926 Birchmont Beach Road
ok Steve Patterson 924 Birchmont Bch Rd NE
OK Sally O Patterson 924 Birchmont Bch Rd NE

EASEMENT

Date: June 29, 2020

For valuable consideration, ROGER A. LARSON and KIMBERLY A. HEGSTROM, spouses married to each other ("Grantor"), hereby grants and convey to ROBERT J. BLAIR and HEIDI BLAIR, spouses married to each other, ("Grantee") their successors and assigns, Easements over real property in Beltrami County, Minnesota, described as follows:

A Temporary Easement over, under and across part of Lot E, Auditor's Plat 10, for any use consistent with the replacement, construction, or reconstruction of a structure on Grantees property. The location of this temporary easement is shown on attached Exhibit B and is described as follows:

> Commencing at the northwest corner of said Lot E, Auditor's Plat 10; thence South 11°02'39" East, bearing based on the Beltrami County Coordinate System, South Zone, along the west line of said Lot E, a distance of 122.20 feet to the point of beginning of the easement to be described; thence North 78°57'21" East a distance of 7.00 feet; thence South 11°02'39" East a distance of 46.79 feet; thence South 78°57'21" West a distance of 7.00 feet to the intersection with said west line of Lot E; thence North 11°02'39" West, along said west line of Lot E, a distance of 46.79 feet to the point of beginning (the "Easement Area").

This Temporary Easement shall expire on August 15, 2022;

AND,

An appurtenant Easement permitting Grantee the right to enter Grantor's property for the purpose of maintaining and repairing the structure benefitted by said Temporary Easement.

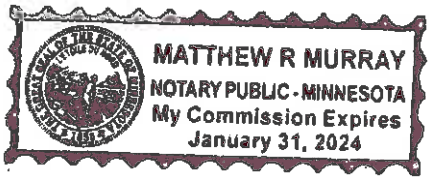
Grantor

Roger A Larson
ROGER A. LARSON

Kim A Hegstrom
ROGER A. LARSON
Kim A Hegstrom KH

State of Minnesota, County of Beltrami

This instrument was acknowledged before me on June 29, 2020 by , ROGER A. LARSON and KIMBERLY A. HEGSTROM, spouses married to each other.



Matthew R. Murray
Notary
My commission expires: January 31, 2024

This instrument was drafted by:

Murray Surveying, Inc.
304 Third Street NW
Bemidji, MN 56601

Summary of Variance Request for Robert and Heidi Blair

Variance for increasing structure height

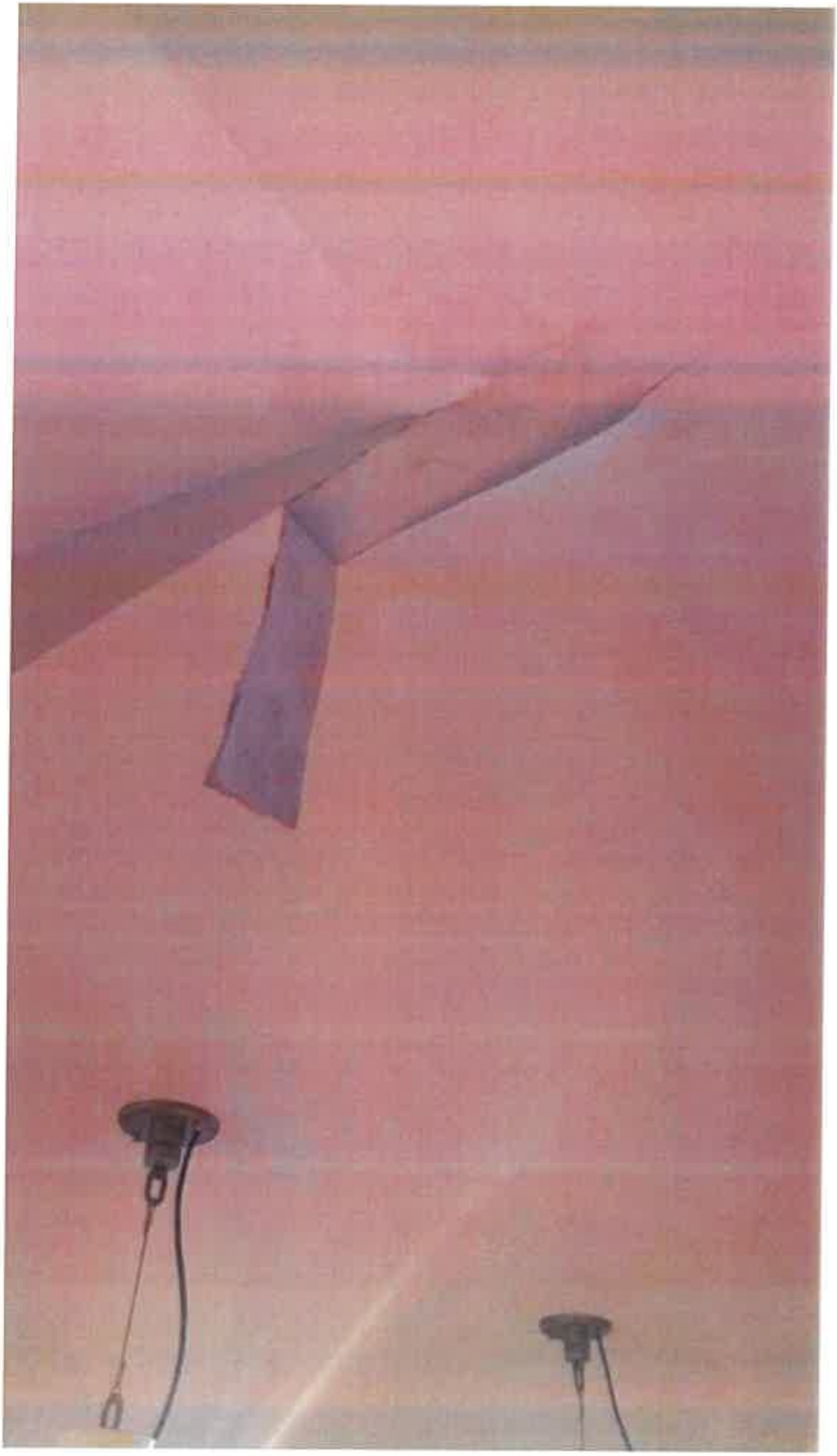
The Blairs are seeking variances to make improvements to their structure, which was originally constructed in 1923. One of the primary factors of this variance application is the need to redo the existing roof, which consists of a flat roof segment, a nearly flat roof segment, and numerous valleys, and is the source of problematic leaking. Efforts to correct the problem have not bee successful. The issue is most significant in late winter and early spring. As a remedy, the goal is to replace the current roof with an entirely new roof system, which includes replacing the flat roof with a peaked roof and eliminating some of the valleys. The purpose of this alteration is solely for function. As it relates to the roof over the existing portion of the structure, there is not any plan to change the overall amount of livable area. Determining a new roof design has been challenging. The solution requires the overall roof height of the north facing portion of the roof to increase approximately 3.5 feet. The lakeward portion of the roof will remain unchanged.

Variance for expansion to north side of structure

As part of the roof replacement project, the Blair's are planning for their future. The Blair's are nearing retirement and know that their needs will change as they continue to age. The current structure does not have a suitable bedroom and bathroom on the main floor. The existing main floor bedroom is only 10 feet wide. Consequently, the Blair's would like to expand the structure through the existing bedroom area by adding on to the rear (road side) portion of their structure. The purpose of the addition would be: (1) to expand/replace the only main floor bedroom, (2) to incorporate a bathroom, and (3) to create an entrance way so there is a place for boots, coats, snow pants, etc.

Variance for increasing height of garage structure

The roof on the existing garage is also in need of replacement. In contemplating this along with the fact that the Blair's have a significant shortage of on-site storage space, the Blair's would like to address both shortfalls by raising the roof and adding storage above the garage. In addressing the shortfall in onsite storage in this manner, the Blairs are able to avoid adding additional impervious surface while preserving the existing driveway configuration, which is ideally suited for their needs in terms of sufficient space for family parking, the ease of maneuvering vehicles on the property, and the preservation of existing trees.



Agency & Neighborhood Packet Distribution Information

Packet Distribution List

City of Bemidji: V-20-31.00879.00 – Robert & Heidi Blair

	Contact	E-MAILED	US Mailed
☒	Applicant / Representative	_____	_____
☒	JPB Attorney	_____	_____
☐	JPB Engineer: _____	_____	_____
☐	City Building Department	_____	_____
☐	City Attorney	_____	_____
☐	City Engineer	_____	_____
☐	City Manager	_____	_____
☐	City Community Development	_____	_____
☐	City GIS Department	_____	_____
☐	City Police Department	_____	_____
☒	City Fire Department	_____	_____
☐	City Parks Department	_____	_____
☒	Northern Township	_____	_____
☐	Beltrami County ESD/SWCD	_____	_____
☐	Beltrami County Recorder	_____	_____
☐	Beltrami County GIS Department	_____	_____
☐	Beltrami County Sheriff	_____	_____
☒	Beltrami County Engineer / Highway	_____	_____
☐	Beltrami County Natural Resources	_____	_____
☐	MnDNR Trails	_____	_____
☒	MnDNR Waters	_____	_____
☐	MnDNR District	_____	_____
☐	MnDOT	_____	_____
☐	Airport	_____	_____
☒	Mississippi Headwaters Board	_____	_____
☐	Bemidji School District	_____	_____
☐	MPCA Closed Landfill Program	_____	_____
☐	U.S. Army Corps of Engineers	_____	_____
☐	Other: _____.	_____	_____

Greater Bemidji Area Joint Planning Board
City of Bemidji Northern Township
317 4th Street NW Bemidji, MN 56601 Office (218) 759-3579 Fax (218) 759-3591

July 2nd, 2020

Northern Township: V-20-31.00879.00 – Robert & Heidi Blair are seeking a variance in order to construct an addition to the existing single-family home along with adding a floor to the existing detached garage on a substandard lot of record located at 906 Birchmont Beach Rd. NE; parcel 31.00879.00 within Northern Township. This parcel is located within the (R-3) Suburban Residential Unsewered Zoning District and Shoreland Overlay. The requested variances are as follows:

1. A reduction of 895 square feet in lot size per the Section 901 requirement of 30,000 square feet;
2. A reduction of 19.86 feet in lot width per Section 901 requirement of 100 feet;
3. A reduction of 48 feet for the OHWL setback per Section 901 requirement of 100 feet;
4. An additional 4.8% or 1,404 square feet of impervious surface coverage above the maximum allowed 25% throughout the property per Section 901; and
5. A setback reduction of nine feet and eight-tenths (9.8) from the required 10 feet from east side yard lot line for the attached garage.

The parcel legal description is as follows: Sect-15 Twp-147 Range-033 AUDITOR'S PLAT NO. 10 Lot-00D .66 AC E1/2

The Greater Bemidji Area Joint Planning Commission will consider this proposal at its meeting on **Thursday, July 23, 2020** at **6:00 p.m.** in the Council Chambers at Bemidji City Hall.

If you have any comments, you may present them to the Commission at that time. Alternatively, you may direct your comments in writing to my attention at the JPB office at 317 4th Street NW, or by email at **jamin.carlson@ci.bemidji.mn.us**. If possible, your comments should be submitted by **Wednesday, July 15, 2020** so they may be incorporated into my report to the Joint Planning Commission. Attached is a copy of the application and other supporting documentation.

If you have any questions or need further information, please feel free to contact me at 218-759-3582.

Respectfully,

Jamin Carlson
Assistant Planner
Greater Bemidji Area Joint Planning Board

Greater Bemidji Area Joint Planning Board
City of Bemidji Northern Township
317 4th Street NW Bemidji, MN 56601 Office (218) 759-3579 Fax (218) 759-3591

July 2nd, 2020

Dear Property Owner:

The Greater Bemidji Area Joint Planning Commission will conduct a public hearing to discuss the following application:

City of Bemidji: V-20-31.00879.00 – Robert & Heidi Blair are seeking a variance in order to construct an addition to the existing single-family home along with adding a floor to the existing detached garage on a substandard lot of record located at 906 Birchmont Beach Rd. NE; parcel 31.00879.00 within Northern Township. This parcel is located within the (R-3) Suburban Residential Unsewered Zoning District and Shoreland Overlay. The requested variances are as follows:

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5. A setback reduction of nine feet and eight-tenths (9.8) from the required 10 feet from east side yard lot line for the attached garage.

The parcel legal description is as follows: Sect-15 Twp-147 Range-033 AUDITOR'S PLAT NO. 10 Lot-00D .66 AC E1/2

This public hearing will be held on **Thursday, July 23, 2020** at **6:00 p.m.** You are invited to attend this hearing, or express your opinions on the proposal by letter to the Greater Bemidji Joint Planning Board. If you choose to submit by letter or email, please have them submitted to Staff by no later than Wednesday, July 22, 2020. Due to COVID-19 and these unprecedented times, the regular scheduled meeting location is still yet to be determined. The regularly scheduled meeting will either be held via telephone and Cisco Webex, an internet based electronic mean or will be held in person at the City Hall Council Chamber, located at 317 4th Street NW in Bemidji. For meeting information, please visit our website at www.jpbgba.org.

If you have any questions, please feel free to contact me at (218) 759-3582, or email comments to **jamin.carlson@ci.bemidji.mn.us**.

Respectfully,

Jamin Carlson
Assistant Planner
Greater Bemidji Area Joint Planning Board

RUTTGER,RANDOLPH J,TRUSTEE
RUTTGER FAMILY TRUST
814 BIRCHMONT BEACH RD NE
BEMIDJI, MN 56601

MIKKELSON CONSOLIDATED LP
2750 S 38TH ST
GRAND FORKS, ND 58201-5967

LARSON,ROGER A
918 BIRCHMONT BEACH RD NE
BEMIDJI, MN 56601

LARSON,ROGER A
918 BIRCHMONT BEACH RD NE
BEMIDJI, MN 56601

PATTERSON,STEPHEN J
SALLY PATTERSON
924 BIRCHMONT BEACH RD NE
BEMIDJI, MN 56601

DEKREY,STEVEN J
SHANG GRAND TOWER 37A
LEGASPI VILLAGE,

NORD,JANE L,TRUSTEE
NORD FAMILY TRUST
607 ISLAND VIEW DR NE
BEMIDJI, MN 56601-7139

RUTTGER,RANDOLPH J,TRUSTEE
RUTTGER FAMILY TRUST
814 BIRCHMONT BEACH RD NE
BEMIDJI, MN 56601

HALEY,MARK D
BONITA RYGG HALEY
104 RIVERS EDGE DR
GRAND FORKS, ND 58201

MIKKELSON,DANIEL C
JOLENE R MIKKELSON
2750 S 38TH ST
GRAND FORKS, ND 258201-5967

HEGSTROM,KIMBERLY A
601 PLEASANT VIEW DR
STOUGHTON, WI 53589-1952

PATTERSON,STEPHEN J
SALLY PATTERSON
924 BIRCHMONT BEACH RD NE
BEMIDJI, MN 56601

BIRCHMONT INC
7598 BEMIDJI RD NE
BEMIDJI, MN 56601

NORD,BRUCE W
SUSAN D NORD
5599 S 11TH ST
GRAND FORKS, ND 58201

WAVRA,MITCHELL E
508 11TH ST SE
EAST GRAND FORKS, MN 56721

RUTTGER,SALLY
2009 NE 21ST CT
WILTON MANORS, FL 33305

BLAIR,ROBERT J
HEIDI BLAIR
3435 30TH ST NE
FOREST RIVER, ND 58233

WAVRA,MITCHELL E
508 11TH ST SE
EAST GRAND FORKS, MN 56721

NAYLOR,JACK
1010 BIRCHMONT BEACH RD NE
BEMIDJI, MN 56601

DEKREY,DANIEL P
BETH A DEKREY
1018 BIRCHMONT BEACH RD NE
BEMIDJI, MN 56601

These data are provided on an "AS-IS" basis, without warranty of any type, expressed or implied, including but not limited to any warranty as to their performance, merchantability, or fitness for any particular purpose.

31.00879.00

1:4,514

Date: 7/1/2020

This map is not a substitute for accurate field surveys or for locating actual property lines and any adjacent features.

Bemidji First City On The Mississippi

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31.00879.00

1:4,514

Date: 7/1/2020

This map is not a substitute for accurate field surveys or for locating actual property lines and any adjacent features.

Bemidji
First City On The Mississippi

-LEGAL ADVERTISEMENT-
GREATER BEMIDJI AREA JOINT PLANNING COMMISSION
NOTICE OF PUBLIC HEARINGS & MEETINGS

NOTICE IS HEREBY GIVEN, that on **Thursday, July 23, at 6:00 p.m.** or as soon thereafter as possible, the Greater Bemidji Area Joint Planning Commission will conduct a Public Hearing via Webex Video Conferencing (see log-in details on jpbgba.org) on the following requests:

City of Bemidji - PUD-20-80.00426.00, 80.00421.00, 80.05221.00 & 80.05222.00 – Puddle Duck Properties, LLC is requesting final approval for a planned unit development (PUD) through a conditional use permit (CUP) located on the four (4) subject parcels within the (R-5) High Density Residential and (B-2) General Commercial Zoning Districts in the City of Bemidji.

Northern Township - V-20-31.00879.00 – Robert & Heidi Blair are seeking a variance in order to construct an addition to the existing single-family home along with adding a floor to the existing detached garage on a substandard lot of record located at 906 Birchmont Beach Rd. NE; within Northern Township. This parcel is located within the (R-3) Suburban Residential Unsewered Zoning District and Shoreland Overlay.

City of Bemidji - V-20-80.00758.00 – Jim Boell is seeking a variance in order to construct an addition to the existing single-family home on a substandard lot of record located at 2918 Birchmont Dr. NE; within the City of Bemidji. This parcel is within the (R-4) Moderate Density Residential Sewered Zoning District and Shoreland Overlay.

All interested parties are encouraged to view or listen to the Hearing, or call the Greater Bemidji Area Joint Planning Board Office at (218) 759-3579, or visit our web site at: www.jpbgba.org for more information. Email comments must be received by **Wednesday, July 15th** for inclusion in staff reports.

1 da: 7/11

AFFIDAVIT OF PUBLICATION

[FORM Rev. 6/15]

STATE OF MINNESOTA
COUNTY OF BELTRAMI } *SS*

TODD KEUTE, being first duly sworn, on oath states as follows:

1. I am the publisher of **THE BEMIDJI PIONEER** or the publisher's designated agent. I have personal knowledge of the facts stated in this Affidavit, which is made pursuant to Minnesota Statutes §331A.07.

2. The newspaper has complied with all of the requirements to constitute a qualified newspaper under Minnesota law, including those requirements found in Minnesota Statutes §331A.02.

3. The dates of the month and the year and day of the week upon which the public notice attached/copied below was published in the newspaper are as follows: **Great Bemidji Area Joint Planning Commission Notice of Public Hearing ran Sat. 7/11/2020**.

4. The publisher's lowest classified rate paid by commercial users for comparable space, as determined pursuant to §331A.06, is as follows: $11.10. The rate actually charged in this matter: **$6.25.**

5. Notice of Mortgage Foreclosure Sale. Pursuant to Minnesota Statutes §580.033 relating to the publication of mortgage foreclosure notices: The newspaper's known office of issue is located in BELTRAMI County. The newspaper complies with the conditions described in §580.033, subd. 1, clause (1) or (2). If the newspaper's known office of issue is located in a county adjoining the county where the mortgaged premises or some part of the mortgaged premises described in the notice are located, a substantial portion of the newspaper's circulation is in the latter county.

FURTHER YOUR AFFIANT SAITH NOT

Todd R Keute

[Signature]

Subscribed and sworn to before me on

This 13th day of July, 2020.

Larisa Severson

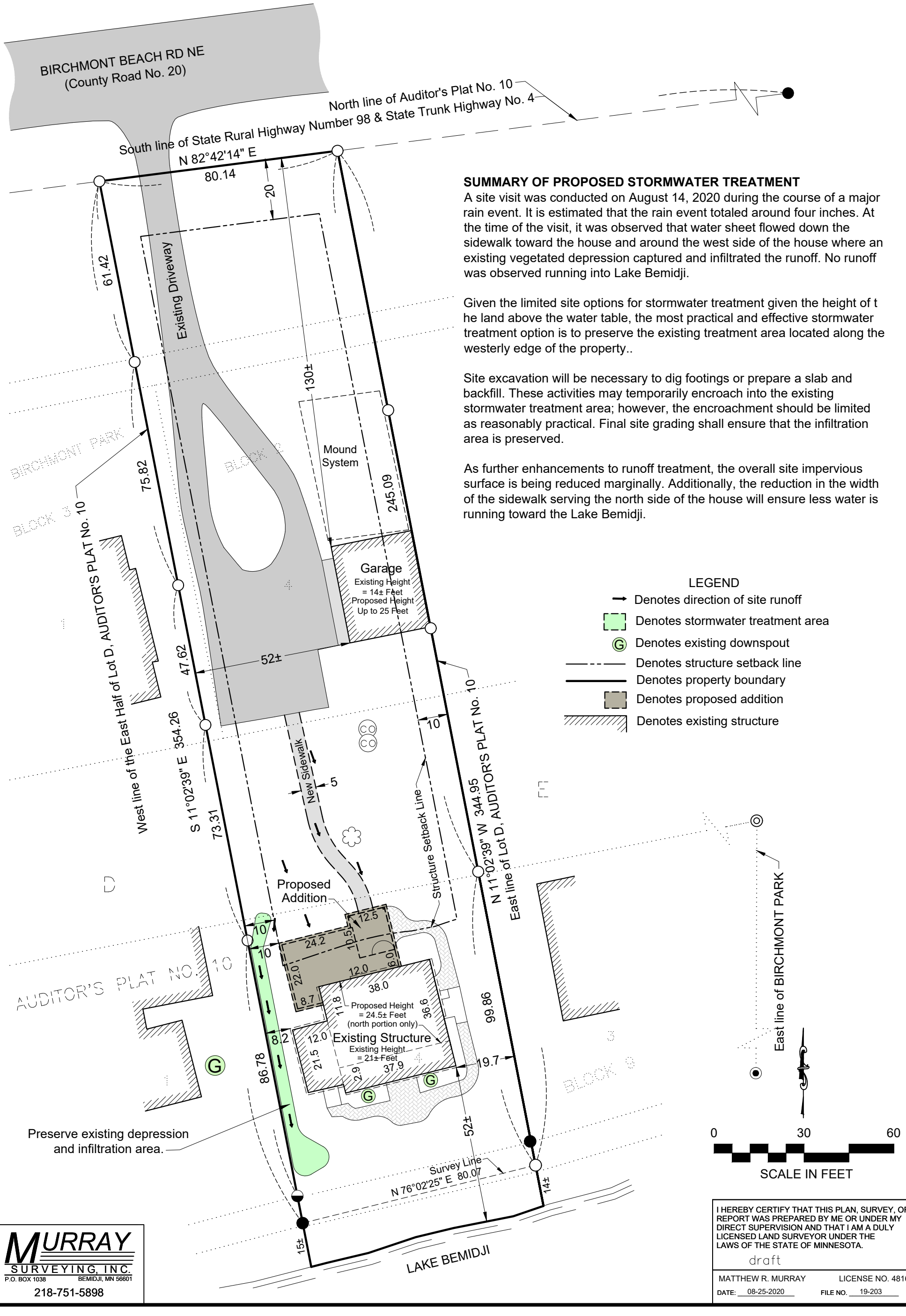
Notary Public

LARISA LYNN SEVERSON
NOTARY PUBLIC - MINNESOTA
My Comm. Exp. Jan. 31, 2024

STORMWATER MITIGATION PLAN

Parcel Tax ID No: 310087900

Address: 906 Birchmont Beach RD NE



SUMMARY OF PROPOSED STORMWATER TREATMENT

A site visit was conducted on August 14, 2020 during the course of a major rain event. It is estimated that the rain event totaled around four inches. At the time of the visit, it was observed that water sheet flowed down the sidewalk toward the house and around the west side of the house where an existing vegetated depression captured and infiltrated the runoff. No runoff was observed running into Lake Bemidji.

Given the limited site options for stormwater treatment given the height of t he land above the water table, the most practical and effective stormwater treatment option is to preserve the existing treatment area located along the westerly edge of the property..

Site excavation will be necessary to dig footings or prepare a slab and backfill. These activities may temporarily encroach into the existing stormwater treatment area; however, the encroachment should be limited as reasonably practical. Final site grading shall ensure that the infiltration area is preserved.

As further enhancements to runoff treatment, the overall site impervious surface is being reduced marginally. Additionally, the reduction in the width of the sidewalk serving the north side of the house will ensure less water is running toward the Lake Bemidji.

LEGEND

- Denotes direction of site runoff
- Denotes stormwater treatment area
- G Denotes existing downspout
- Denotes structure setback line
- Denotes property boundary
- Denotes proposed addition
- Denotes existing structure

MURRAY SURVEYING, INC.
P.O. BOX 1038 BEMIDJI, MN 56601
218-751-5898

I HEREBY CERTIFY THAT THIS PLAN, SURVEY, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

draft

MATTHEW R. MURRAY LICENSE NO. 48168

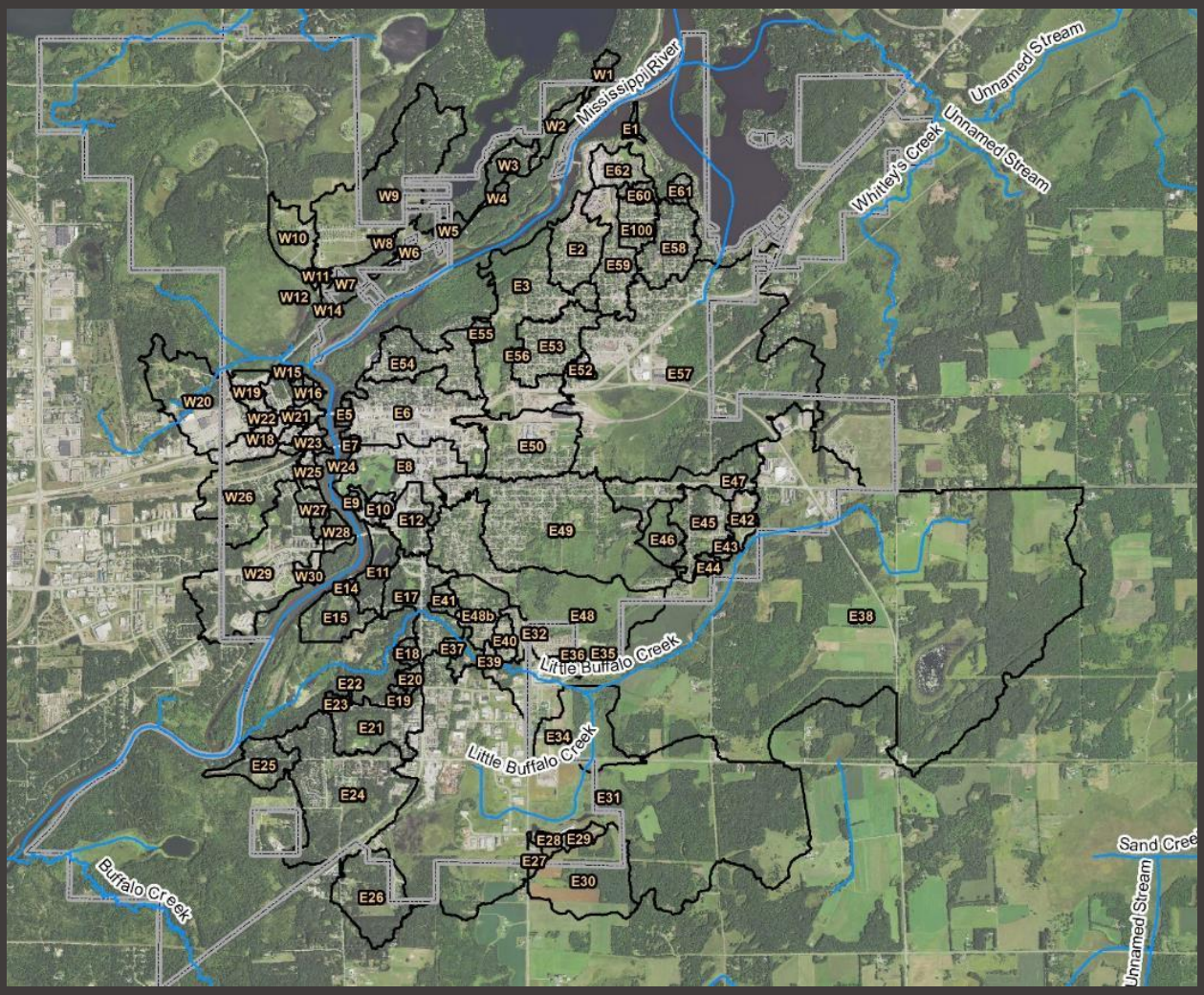
DATE: 08-25-2020 FILE NO. 19-203

Action/Discussion

Brainerd Stormwater Retrofit Analysis
Recreational signage program update
MHB Protection strategy
Executive Director's Report

Brainerd, MN, Stormwater Retrofit Analysis
6/12/2020

City of Brainerd, MN, North Central Minnesota Joint Powers Board, & Mississippi Headwaters Board



HRGreen
2550 University Avenue West
Suite 400N
St. Paul, MN 55114

WIDSETH
7804 Industrial Park Road South
Baxter, MN 56425

Brainerd, MN, Stormwater Retrofit Analysis

Prepared by:

Shawn Tracy, Lead Scientist
HR Green

Lorin Hatch, Water Quality Scientist
Widseth Smith Nolting

City of Brainerd Contact:
Paul Sandy, City Engineer

North Central Minnesota Joint Powers Board Contact:
Melissa Barrick, Administrator

Mississippi Headwaters Board Contact:
Tim Terrill, Administrator

• • •

Table of Contents

List of Figures and Tables

I. Introduction and Summary of Results

A. Document Organization

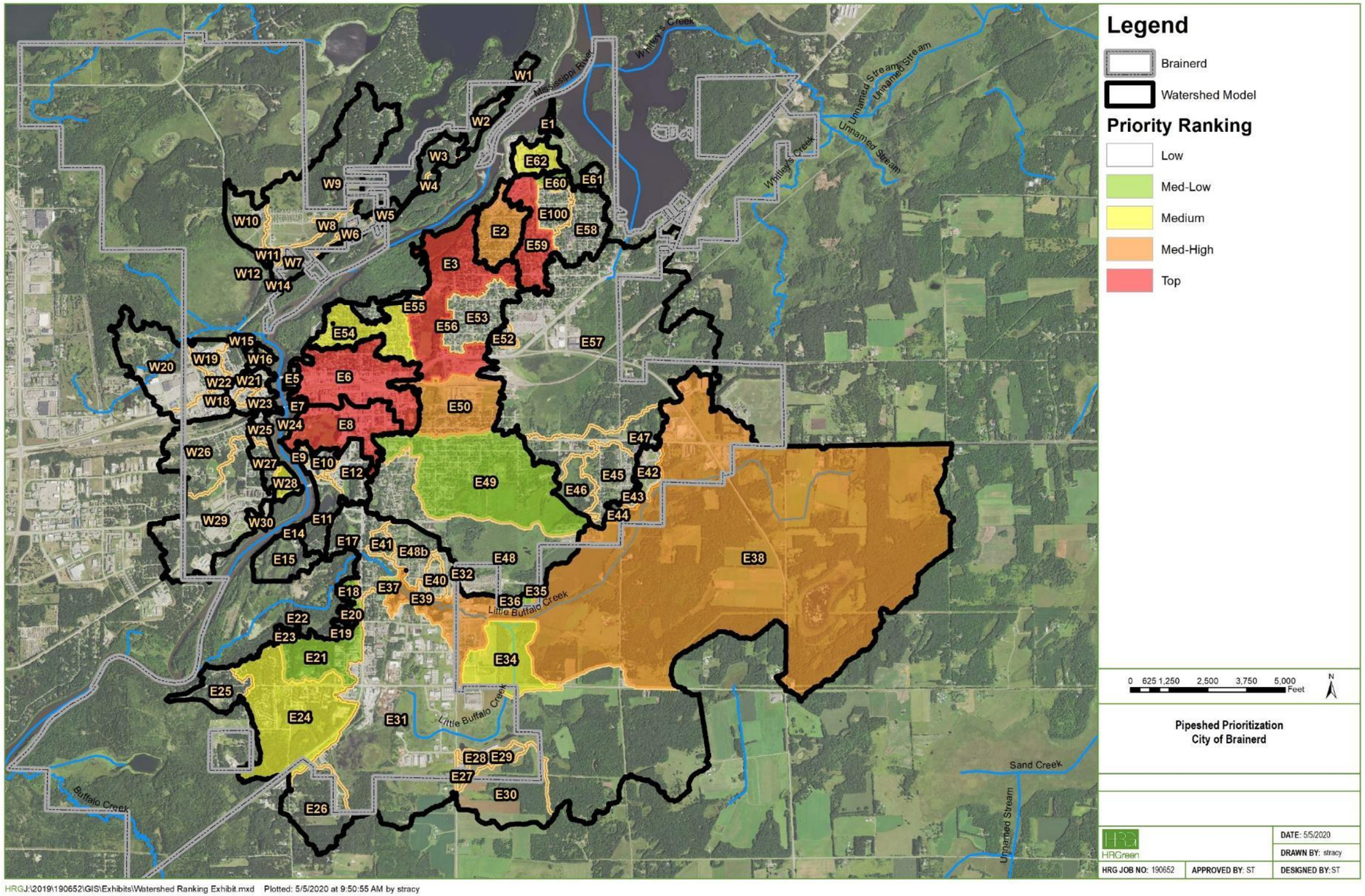
The document presents the development, results, and recommendations of the Brainerd Stormwater Retrofit Assessment (SRA) that focused on areas within the Brainerd city limits that convey stormwater. A previous study took place on the Buffalo Creek watershed; those results are presented elsewhere. The idea for the study originated with three interested parties, all of whom contributed funds for the SRA. These include the City of Brainerd, the North Central Minnesota Joint Powers Board, and the Mississippi Headwaters Board. An overall summary of the project and its results are presented in the Executive Summary, followed by desktop and field efforts to collect information and set up an initial P8 water quality model for major watersheds. Intensive modeling occurred on the top five priority subwatersheds identified, with recommended strategies presented.

B. Executive Summary

The Brainerd Stormwater Retrofit Assessment study (SRA) examined stormwater runoff across the city, dividing the surface area into 7 major watersheds and 76 subwatersheds (**Figure 1**). Areas north of downtown across the Mississippi River were not modeled because they are scarcely populated and relatively new developments that were subject to the City stormwater ordinance requirements. Initial coarse watershed modeling was then subjected to screening metrics, resulting in five top priority subwatersheds being identified for further intensive modeling that simulated varying best management practices (BMPs) to optimize implementation value. These subwatersheds are depicted in red in Figure 1, which includes the downtown area.

Within each priority subwatershed one or more BMPs were recommended for implementation by the City (**Table 1**). Results are presented as construction costs, maintenance costs, and $/pound of both total suspended sediments (TSS) and total phosphorus (TP). Note, however, that modeling caveats apply here. These recommendations were based on modeling assumptions (e.g. bioretention cells were assumed to cover 150-ft^2 of area for modelling purposes). Such details may change at the BMP design and implementation phase; refinements to modeling may be necessary to calculate final sediment and phosphorus reductions.

Figure 1. **Prioritized subwatersheds for implementation strategies.**



HRGJ:\2019\190652\GIS\Exhibits\Watershed Ranking Exhibit.mxd Plotted: 5/5/2020 at 9:50:55 AM by stracy

Table 1. Recommended Implementation Strategies

Subwatershed	Alternative	Construction Cost	Present Day Value	Pollutant Removal Relative to Outfall to River		$/lb-TSS	$/lb-TP
				TSS-Lbs Removed	TP-Lbs Removed		
E49/50	Site #1 Stormwater Wetland + IESF	$ 250,000	$ 281,380	54,832	152	$ 0.17	$ 62
E8	Bioretention and/or Stormwater Planters (13% TSS)	$ 47,250	$ 53,760	4,037	4	$ 0.44	$ 448
E6	Bioretention and/or Stormwater Planters (20% TSS)	$ 160,650	$ 182,785	10,877	8	$ 0.56	$ 762
E8	Site #2 Full Spectrum Detention (maximized to site)	$ 317,128	$ 353,745	14,894	30.1	$ 0.79	$ 392
E6	Full Spectrum Detention	$ 292,768	$ 329,385	10,449	15	$ 1.05	$ 732
E54	Site #2 P3001 IESF	$ 119,060	$ 87,019	2,484	13	$ 1.17	$ 223
E53	Bioretention and/or Stormwater Planters	$ 70,950	$ 85,273	1,674	4	$ 1.70	$ 711
E3	Bioretention and/or Stormwater Planters	$ 70,950	$ 85,273	1,674	4	$ 1.70	$ 711
E8	Permeable Parking (11% TSS)	$ 85,758	$ 336,151	3,258	7	$ 3.44	$ 1,601
E6	Permeable Parking (4a% TSS)	$ 85,758	$ 336,151	2,000	5	$ 5.60	$ 2,241
W15/18	Pond P4002 IESF	$ 184,710	$ 149,130	282	13.8	$ 17.63	$ 360
	Totals	**$ 1,684,982**		**106,461**	**256**		

It is recommended that the City implement strategies based on their comprehensive return on investment considering the above metrics. It is also recommended that the City continues to implement strategies identified within the *Buffalo Creek Subwatershed – Stormwater BMP Retrofit Analysis*, 2012 study given the numerous high-value strategies identified as well as the current analysis' findings for their correlated multi-value return on investment (**Figure 1**).

II. Methods

A. Background

Issues and Goals Identification

To assist in driving the analysis of the City of Brainerd, MN stormwater infrastructure, and to identify potential opportunities to retrofit stormwater water quality best management practices (BMPs), meetings were held with City staff (City), the Crow Wing Soil and Water Conservation District (SWCD) and the Mississippi Headwaters Board (MHB). An initial meeting was held at the City Public Works office to review existing data and collect local knowledge. Information from this meeting was supplemented with additional conversations throughout the analysis to clarify stormwater conveyance and treatment issues and opportunities. In addition, priority ranking parameters and scoring criteria were developed to assist in screening subwatersheds for areas that likely yield multiple management goals. Though all subwatersheds (i.e., pipesheds) were modeled for existing pollutant loading the Mississippi River, the screening parameters guided which would be modeled to estimate treatment alternative performance.

Summary of Previous Studies

A stormwater retrofit analysis for the Little Buffalo Creek subwatershed, located in the southern areas of Brainerd, was performed in 2012 (*Buffalo Creek Subwatershed – Stormwater BMP Retrofit Analysis*, Shawn Tracy, 2012). The methods used in this study were quite similar to the present study. Since the study was completed several of the recommended BMPs have been implemented with significant improvements seen in Little Buffalo Creek water quality.

The Crow Wing County Local Comprehensive Water Plan (2013-2023) contains a stormwater management objective that with multiple actions. These include technical assistance, onsite guidance, financial incentives, educational materials and workshops, supporting scientific research, and developing public and private drainage solutions. Measurable outcomes include total number of implemented stormwater plans, implementing at least 15 plans yearly, hosting an annual workshop, and maintaining stormwater factsheets on the County website.
https://crowwing.us/241/Water-Quality-and-Water-Plan

The City of Brainerd Comprehensive Plan (2019) provides goals and policies pertaining to stormwater. One is the encouragement of the use of stormwater BMPs to improve local and regional water quality, while another is to encourage BMPs for managing runoff. Green infrastructure was emphasized, with descriptions of several stormwater BMP and the City's SWPPP.
https://www.ci.brainerd.mn.us/DocumentCenter/View/5324/Brainerd_ComprehensivePlan?bidId=
https://www.ci.brainerd.mn.us/183/Stormwater

The most recent annual plans and reports for the Crow Wing SWCD are from 2018. The SWCD often cites supporting the efforts of the Crow Wing County Water Plan. In the 2018 SWCD Work Plan, stormwater management is addressed through resource planning and targeting sub-watersheds, use of Clean Water Legacy Grants, targeting the Serpent Lake for projects, offering the Community Centered Runoff Mini-Grant Program, and emphasizing state cost sharing.

https://crowwingswcd.org/annual-reports-plans/

The Mississippi Headwaters Board Comprehensive Plan (2019) states that "proper stormwater management must be considered in compliance with state laws in reviews, approvals, and permits related to this Comprehensive Plan. It is recommended that best management practices and a storm-water management plan be considered." The Mississippi Headwaters Board has funded several stormwater retrofit studies in the past several years for communities along the upper Mississippi River; example communities include Bemidji, Grand Rapids, Baxter, and Little Falls.
http://mississippiheadwaters.org/files/regmanagement/2019%20final%20draft%20MHB%20Comp%20plan.pdf

The Water Restoration and Protection Strategy (WRAPS) study for the Mississippi River – Brainerd reach is underway by the Minnesota Pollution Control Agency, and is anticipated to be completed in 2020.
https://www.pca.state.mn.us/sites/default/files/wq-ws4-38b.pdf

The Minnesota Source Management Program (2013) identifies goals for addressing urban runoff. These include the development of comprehensive runoff management plans by small MS4 communities, the advancement of BMP and LID techniques, addressing stormwater load allocation reductions for TMDLs, establishing a technical assistance program, promotion of urban water quality through education programs, collaboration between stormwater runoff stakeholders, and BMP research.
https://www.pca.state.mn.us/sites/default/files/wq-cwp8-15.pdf

The BWSR Nonpoint Priority Funding Plan (2018) does not directly address stormwater. However, one of the two watershed examples provided in the report was the Bassett Creek Watershed Management Organization, which discussed the use of stormwater management techniques to improve water quality in their waterbodies.
https://bwsr.state.mn.us/sites/default/files/2019-01/180827%20FINAL%202018%20NPFP.pdf

B. Subwatershed Development and Watershed Model Grouping

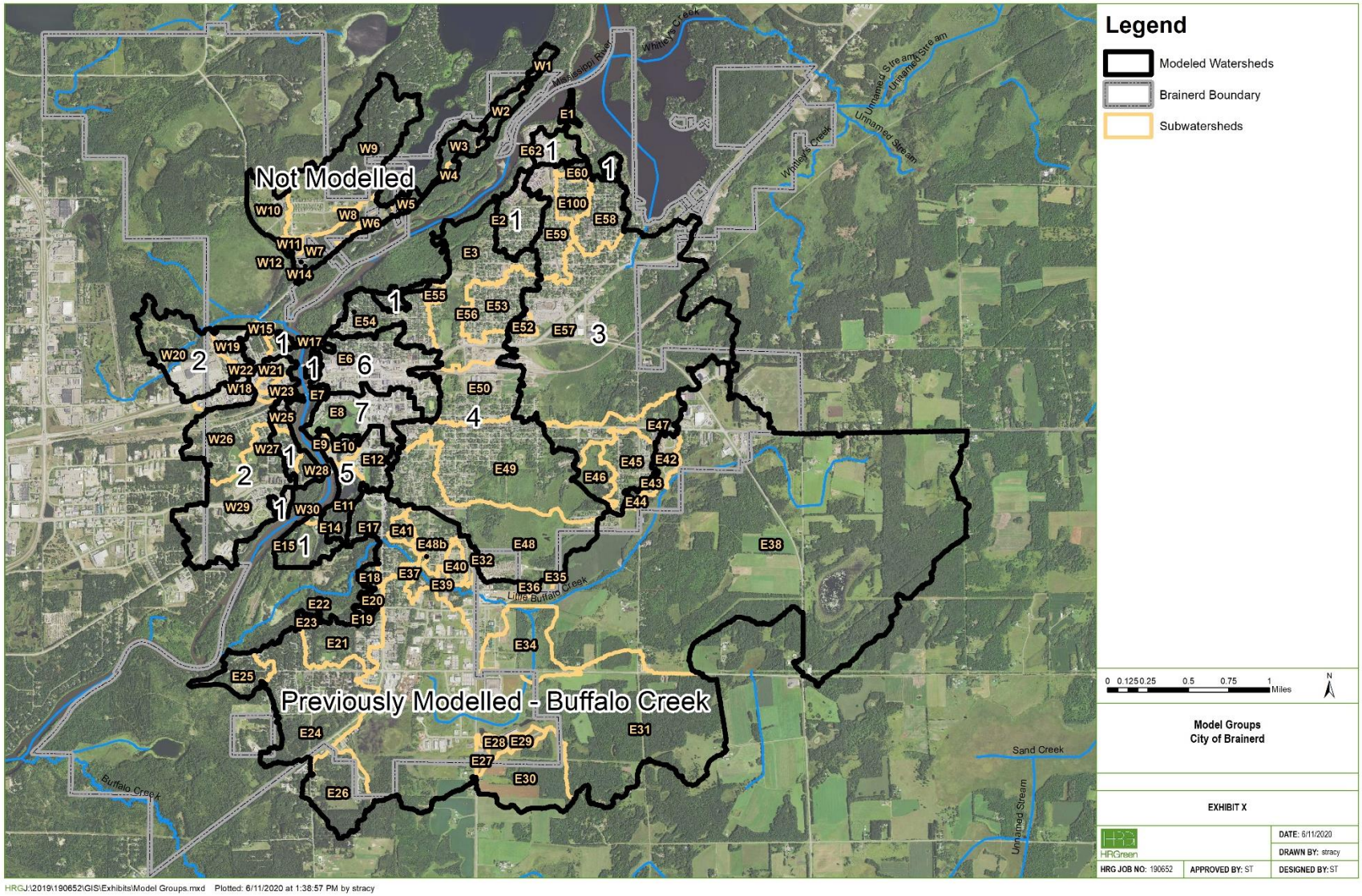
Subwatershed Delineation

The City's stormwater database (GIS) was used along with a digital elevation model in GIS to delineate subwatersheds (i.e. pipesheds) all commonly draining to an outfall of the Mississippi River (**Figure 8**). The resulting delineations then allow the City to account for watershed loading and future treatment on multiple scales: watersheds and subwatersheds.

Model Grouping by Watershed

Subwaterhseds were grouped into seven model groups related to their common outfall to the Mississippi River (**Figure 2**). This provides modeling estimates of average annual pollutant loading to the Mississippi River on a larger watershed scale, shortens model run time and makes it easier for the City to manage the models in the future.

Figure 2. Model groupings of subwatersheds.



C. Desktop Analysis

Initial Retrofit Review

Stakeholder-defined parameters and scoring metrics were used to provide an initial screening for subwatersheds likely to yield the greatest return on investment for multiple-values (**Appendix B - Prioritization and Screening Factors**). The team decided that is useful to give all six metrics priority and this decision was carried out for the subsequent modeling effort. Following this, a review of the optimal, targeted areas suitable for retrofitting BMPs was performed via desktop using GIS and aerial imagery. The process involved scrutinizing various land uses and existing ponds and outfalls for indicators suggesting retrofit opportunities. Areas potentially conducive to retrofitting were recorded within a GIS Shapefile, along with their potential BMPs.

The potential rertrofit areas reviewed were as follows, in order of importance;

1. Outfalls
2. Existing ponds
3. Public lands
4. Residential lands
5. Commercial and Industrial lands

Existing Conditions Modeling

Each pipeshed's existing and proposed stormwater effluent water quality was modeled within P8 Urban Catchment Model (Walker, 2015). Soils (**Figure 9**), ground water protection areas (**Figure 10**), land cover (**Figure 11**) and parcel information (**Figure 12**) were included to perform this task. Land use classifications were derived from City Zoning Classifications and converted to WinSLAMM (PV Associates) codes to adopt empirically-derived parameters in the Midwest such as directly and indirectly-connect impervious ratios, sediment accumulation and decay rates, particle distribution of accumulated sediment and wash-off rates, sediment-pollutant affiliations by particle size, among others. NRCS soils obtained from the NRCS Web Soil Survey were used for classification of hydrologic soil groups. As-built surveys, where available, were obtained from the City and referenced for development of existing ponding and accounting for existing treatment of water quality.

The initial modeling results at the major watershed scale are presented in **Table 2**. While watersheds 2, 3, and 4 yielded the greatest quantities of sediment and phosphorus to the Mississippi River, watershed 4 yields the highest sediment loading per acre and 6 and 7 yielded the greatest pounds per acre for sediment and phosphorus (watershed 1 represents an aggregate of several, small, directly connected pipesheds).

Table 2. Major watershed modeling results for sediment and phosphorus yields.

Watershed Modeling Group	Acres	Export to Water Resource*			
		Total Suspended Sediment		Total Phosphorus	
		lbs/yr	lbs/acre	lbs/yr	lbs/acre
Watershed 1 (aggregated small, outlier pipesheds)	259	44,523	172	145	0.6
Watershed 2	5569	109,455	20	388	0.1
Watershed 3	1139	148,932	131	520	0.5
Watershed 4	1071	142,982	1343	466	0.4
Watershed 5	111	16,293	147	62	0.6
Watershed 6	164	54,361	331	173	1.1
Watershed 7	109	29,474	270	94	0.9

*Accounts for existing treatment.

D. Field Reconnaissance

A review of potential retrofit opportunities within the City was performed by visiting existing ponds, neighborhoods, commercial and industrial land uses. A map book of subwatersheds, stormwater infrastructure, flow paths and aerial imagery was referenced for this work. Ponds identified as potential for retrofitting were visited, as well as the majority of the remaining land use areas. Specific site limitations on the feasibility of constructing retrofit alternatives were also documented to inform limitations on sizing in modeling efforts.

E. Subwatershed Treatment Modeling, Valuation and Prioritization

Modeling

The existing conditions model was used to then used to assess the performance of various BMP alternatives for top-ranking subwatersheds from the initial screening. P8 uses settling time and filtration efficiencies to estimate load reductions of BMPs. In all cases, default settings for sediment-pollutant associations, particle settling times and particle filtration efficiencies were retained. Iterations of various treatment rates (expressed in percentages) were performed for each alterative up to either 60% total phosphorus/80% total suspended sediment removal (the point at which incremental return on investment greatly diminishes) or to a point representing the maximum potential build out capacity of a pipeshed (as determined either by an individual site for a regional treatment system was identified or by the total number of optimal locations for a pipeshed's small, distributed green infrastructure practices it would yield).

Valuation

Each modeled BMP alternative was then reviewed for cost-benefit value. Each potential project's present-day value divided by 30 years of pollutant removal served as the cost-benefit value. Present day value was calculated as the cost to design, build and provide maintenance over a 30-year period. The Water Environment Federation's present-day value tool (WEF-PDV) was used to calculate this value. Moderate levels of maintenance for annual, intermittent and periodic maintenance activities were assumed for this evaluation. Annual maintenance included minor inspection and correction activities.

Intermittent maintenance was set to occur every few years including moderate levels of site repair or cleanup. Periodic maintenance occurred 1 to 2 times over 30 years (e.g., dredging).

Prioritization Ranking

The prioritization process for proposed retrofit alternatives started with the subwatershed/pipeshed screening and was then informed further by treatment performance and life-cycle costs. Alternatives passing the first screening test that were then evaluated for performance were ranked in order of lowest cost per unit of pollutant removal (e.g., average annual $/lb-TSS).

III. Results

A. Watershed Group Priority Levels

While there were 76 total subwatersheds modelled in this study, we present here those subwatersheds that were deemed medium priority or greater (**Table 3**). The remaining subwatersheds not presented in the table were assigned a ranking of "Low Priority Level" and are not presented here.

Table 3. Subwatersheds given higher priorities for further examination.

Watershed Model Group	Pipeshed/Strategy Location	Priority Level
Watershed 1	E2	Med-High
	E62	Medium
	W28	Medium
Watershed 2	W15	Top
Watershed 3	E59	Top
	E60	Med-Low
Watershed 4	E3	Top
	E49	Med-Low
	E50	Med-High
	E54	Medium
Watershed 5	None	None
Watershed 6	E6	Top
Watershed 7	E8	Top
Buffalo Creek Watershed (previously modeled)	E18	Med-Low
	E20	Med-Low
	E21	Med-Low
	E22	Med-Low
	E23	Med-Low
	E24	Medium
	E34	Medium
	E35	Med-Low
	E36	Medium
	E37	Med-Low
	E38	Med-High

B. Top Priority Subwatersheds

The study has identified 5 top priority subwatersheds, based on the screening metrics, for targeting BMP implementation projects (**Table 4**). These include W15, E59, E3, E6, and E8. Each of these subwatersheds received more focused modeling to determine the best-valued BMPs and proposed locations.

Table 4. Top priority subwatersheds.

		Export to Water Resource*	
Subwatershed (contributing pipeshed)	Acres	Total Suspended Sediment (TSS-lbs/yr)	Total Phosphorus (TP-lbs/yr)
W15 & W18	57	19,857	63
E59	74	1,374	18
E3 (Group 4 except E48)	797	97,765	322
E6	164	54,361	173
E8	109	29,474	94

*Accounts for existing treatment.

Note that subwatersheds E6 and E8 represent the entirety of their watershed areas; these are located in the downtown area (**Figure 1**; **Figure 2**). Each of the 5 subwatersheds in Table 4 received additional focused modeling to determine the best combination of BMPs for location, costs, and value.

C. Subwatershed W15 and Subwatershed W18 Strategies

This subwatershed is part of Watershed 2 and are located west of the River (**Figure 3**). The average annual loadings are 19,857lbs-TSS/year and 63 lbs-TP/year. Based on the modeling exercise we suggest that an iron-enhanced sand filter be considered for further implementation analyses (**Table 5**). IESF's primary treatment value is in dissolve phosphorus removal, though it can be expected that additional removal of fine particles will occur.

Table 5. Subwatersheds W15 and W18 Strategy Annual Performance

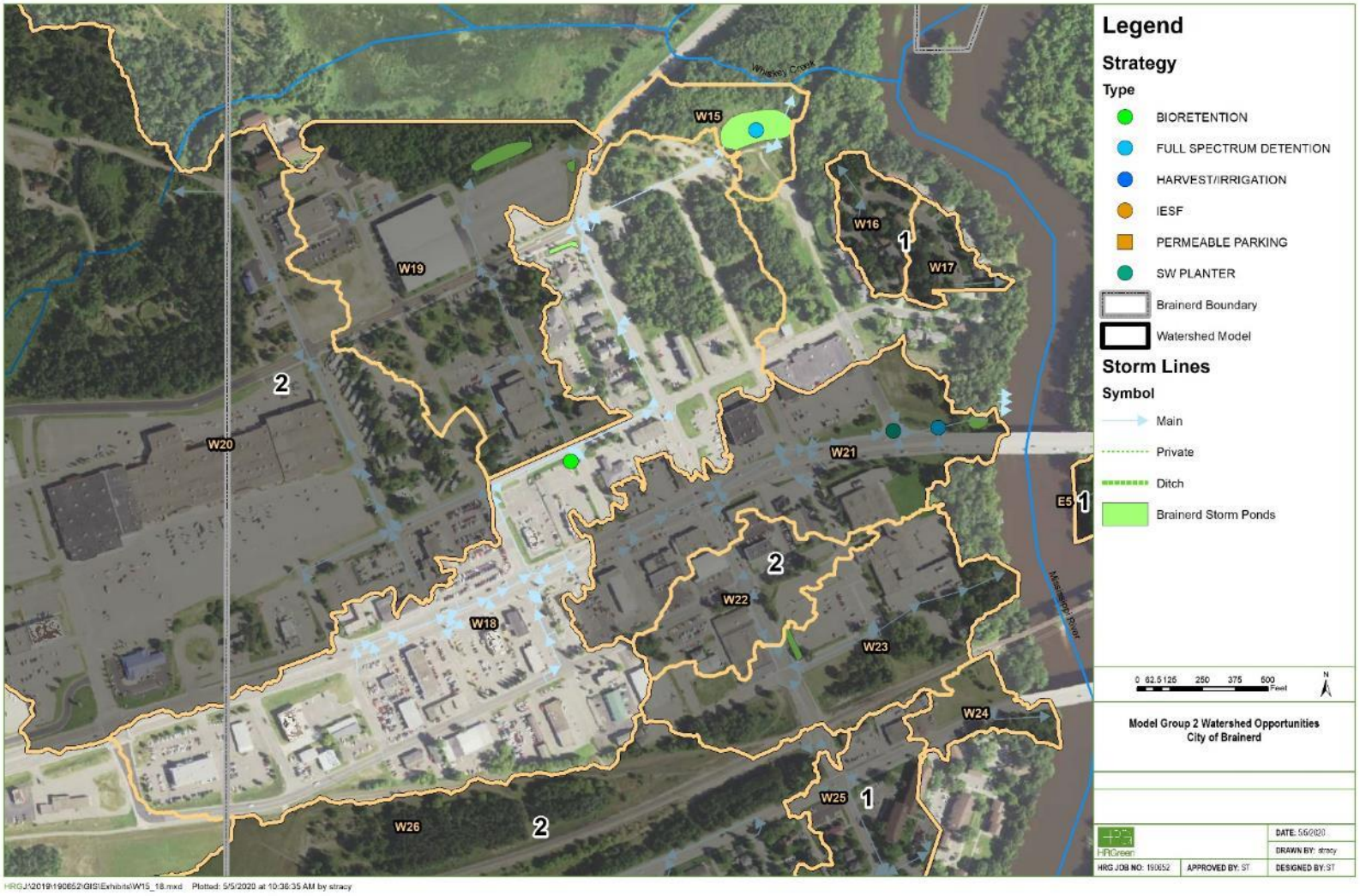
	Pollutant Removal Relative to Outfall to River[a]					
	TSS		TP			
Alternative	**Additional % Removed**	**Additional Lbs Removed**	**Additional % Removed**	**Additional Lbs Removed**	**Total Surface Area (ac)**	**Total BMPs**
Pond P4002 IESF	<1	282	22	13.8	2615	1

[a]Results shown are for the expected level of treatment above and beyond existing pond treatment [existing pond is estimated at 15,531 LB-TSS (78%) and 29.6 LB-TP (47%) removal annually]. Dissolved phosphorus (P0 particle size in model) removal efficiency assumed to be 60%, as per MPCA guidelines. Addition of an Iron Enhanced Sand Filter (18-inches deep with underdrain routed to existing outlet structure) designed to filter 3-acft of flow. Assumes 3-ft of live pool bounce.

Alternative	**TSS Treatment Level (%)**	**Construction Cost**	**Maintenance Costs (30-yr)**		**Present Day Value**	**$/lb-TSS**	**$/lb-TP**
			Annual	**Intermittent (10-yr cycle)**			
Pond P4002 IESF	<1	$184,710	$780	$52,000	$149,130	$18	$360

1. Engineering design fees included.
2. New outlet will be needed to accommodate the IESF design (@$8,000).
3. Media replacement every 10-years.

Figure 3. Subwatersheds W15 and W18 BMPs



D. Subwatershed E59 Strategies

This subwatershed is part of Watershed 3 and is located in the northeast are of the City (**Figure 4**). The average annual loadings are 1,374 lbs-TSS/year and 18 lbs-TP/year. Based on the modeling exercise we suggest that an alum dosing station be considered for further implementation analyses (**Table 6**).

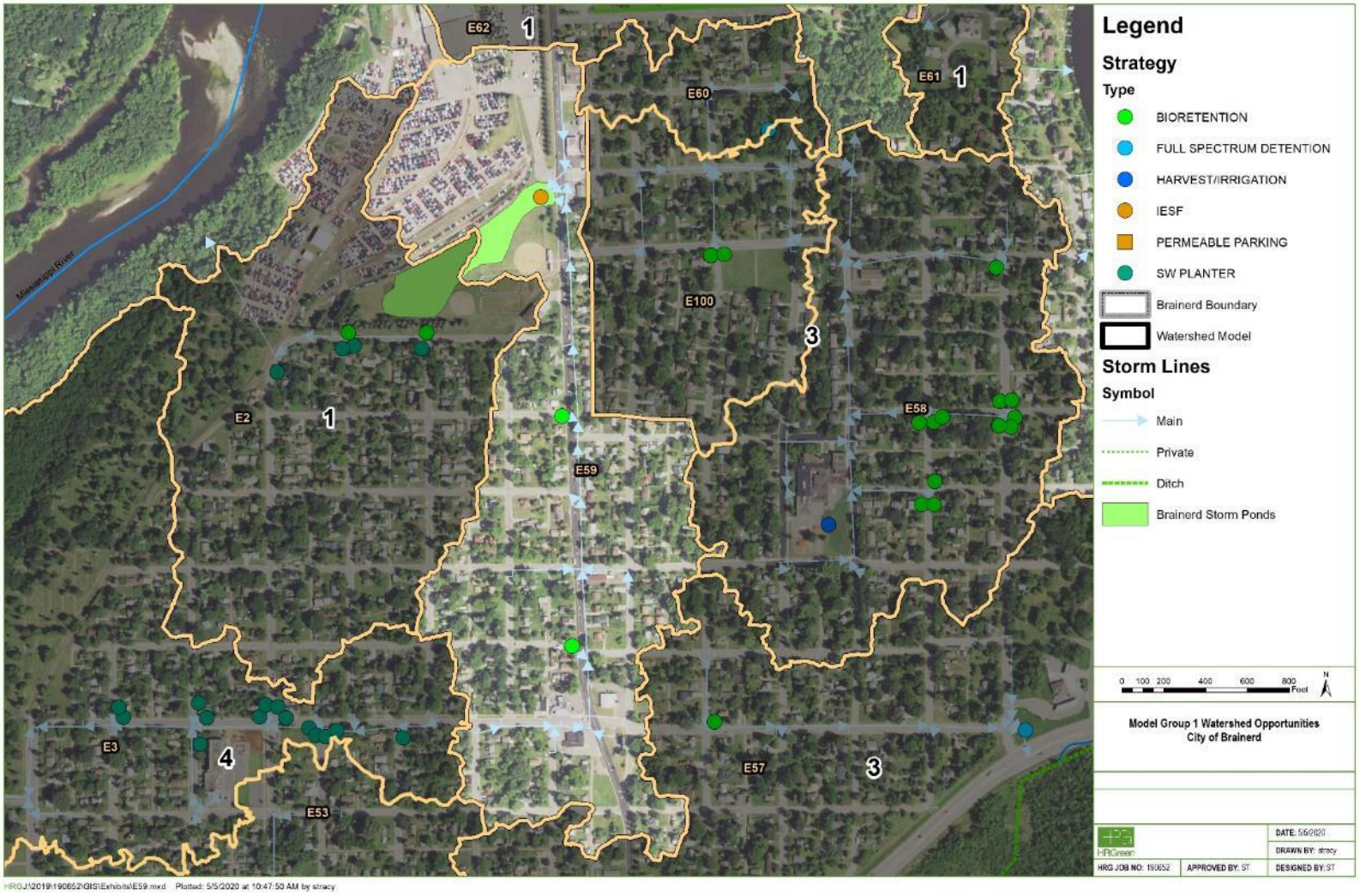
Given the complex 2-way inlet-outlet configuration of this pond, no modeling was performed to predict estimates of potential sediment and phosphorus reduction related to Alum dosing (note that an Iron-enhanced Sand Filter was considered for this site but appears to infeasible given outlet hydraulics). Alum dosing is intended for phosphorus reduction though the TMDL targets sediment. Should the City or partners wish to provide additional phosphorus treatment, the following are recommendations for a full feasibility analysis:

- Monitor inflow and outflow during several storm events, monitor water quality, then perform jar testing to determine dosing.
- Jar testing, residence of minimum of 6 hours, alum dose based on phosphorus loading and settling time of particles and suspend/dissolved phosphorus. This will also inform dosing station's chemical storage tank size and dosing mechanical delivery system and associated costs.

Table 6. Subwatershed E59 Strategy Annual Performance

	Pollutant Removal Relative to Outfall to River					
Alternative	TSS		TP		Total Surface Area (ac)	Total BMPs
	% Removed	Lbs	% Removed	Lbs		
Site #1 Pond P0021 Alum Dosing Station[a]	N/A	N/A	N/A	N/A	N/A	N/A

Figure 4. Subwatershed E59 BMPs



E. Subwatershed E3, E49, E50, E53, E54 Strategies

This subwatershed is part of Watershed 4 and is centrally located in the City (**Figure 5**). The average annual loadings are 97,765 lbs-TSS/year and 322 lbs-TP/year. Based on the modeling exercise we suggest that iron-enhanced sand filters and bioretention be considered for further implementation analyses (**Table 7**).

Table 7. Subwatershed E3 Strategy Annual Performance

Alternative	Pollutant Removal Relative to Outfall to River				Total Surface Area (ac)	Total BMPs
	TSS		TP			
	% Removed	Lbs	% Removed	Lbs		
Site #1 E49/E50 Stormwater Wetland + IESF[a]	38	54,832	33	152	2	2
Site #2 E54 P3001 IESF[b]	<1	2,484	<1	13	0.01	1
E53 Bioretention	1	1,674	1	4	0.03	11
E3 Bioretention	1	1,674	1	4	0.03	11

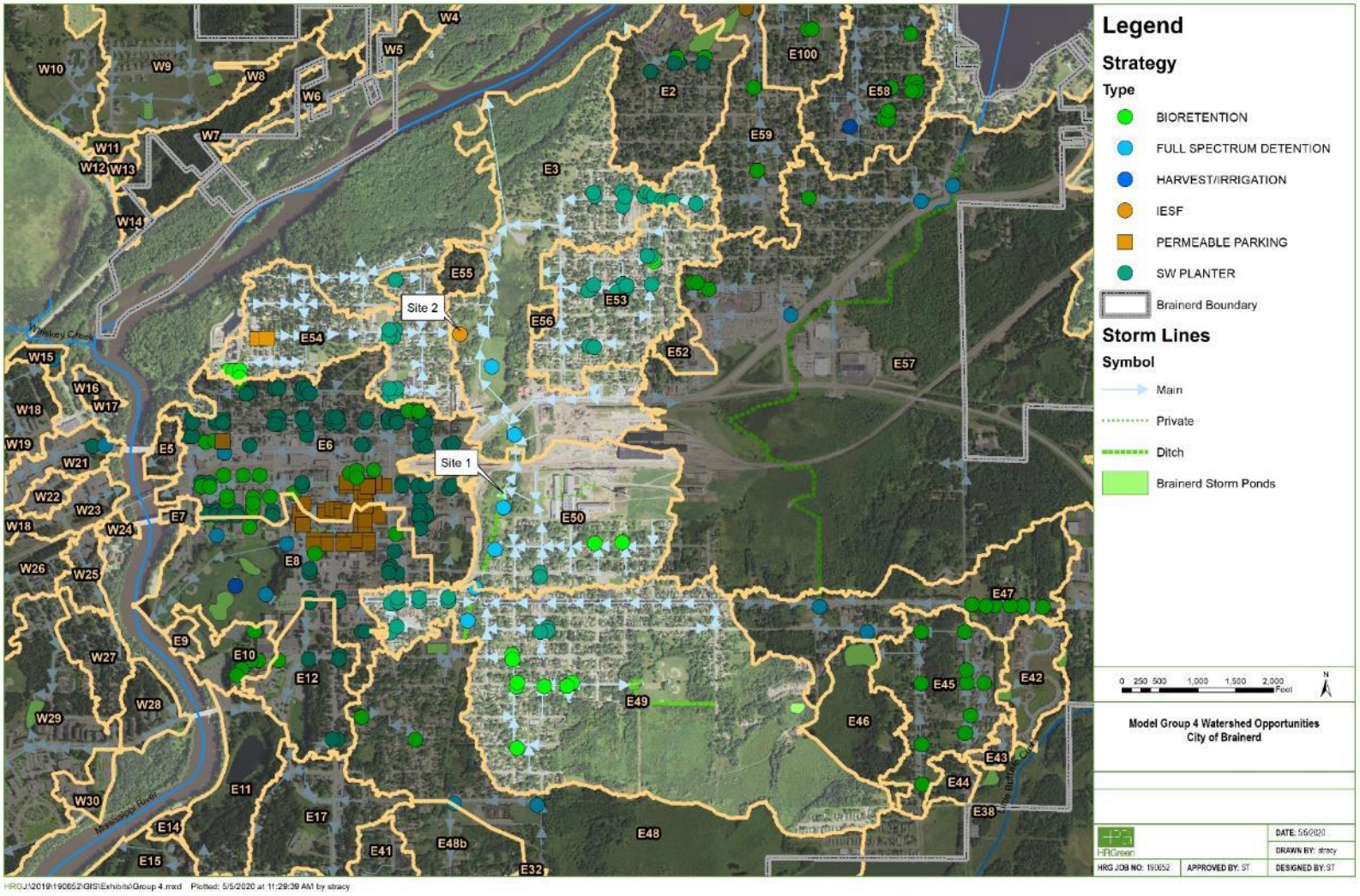
[a]2-acre wetland (Permanent pool surface 2-acres and 2 feet deep; Permanent pool surface area 1-acre, 3 feet deep) with 100-lnft X 10-ft, 2-ft of iron-sand and new riser outlet structure with assumed 4-in/hr infiltration rate (requires full feasibility study and surface flooding model to validate).

[b]Addition of a 4-ft by 100-ft Iron Enhanced Sand Filter on southern pond cell (18-inches deep with underdrain routed to a new compound outlet structure). Assumes both ponds are hydrologically connected and allowing 3-ft of live pool bounce.

Alternative	TSS Treatment Level (%)	Construction Cost	Maintenance Costs		Present Day Value	$/lb-TSS	$/lb-TP
			Annual	Intermittent			
Site #1 E49/E50 Stormwater Wetland + IESF	38	$250,000	Y1-5, $3,000; Y5+, $1,000	$3,920 (5-yr)	$281,380	$0.20	$360
Site #2 E54 P3001 IESF	<1	$119,060	$780	$20,000 (10-yr)	$87,019	$1.20	$223
E53 Bioretention and/or Stormwater Planters	1	$70,950	Home Owner	$5,500 (5-yr)	$85,273	$1.70	$710
E3 Bioretention and/or Stormwater Planters	1	$70,950	Home Owner	$5,500 (5-yr)	$85,273	$1.70	$710

1. City owns and operates all facilities.
2. Annual discount rate of 5.5%.
3. Stormwater Wetland
    a. Pricing derived from recently designed and constructed wetland in Grand Rapids, MN.
    b. Maintenance: Y1-Y5, monthly plant and weed management, 1 inspection. Y5 onwards, two plant and weed management visits per year, annual inspection and sediment bay clean out every 5 years.
    c. Contingency and design fees included.
4. Bioretention costing $43/ft^2; no retaining walls are assumed in this area.
    a. Designed as a filtering system with underdrain, media and connection to manhole structures. A valve control should be included in the underdrain system in case local soils facilitate infiltration. If infiltration is viable within 32 hours, treatment will double and the resulting $/LB-Pollutant value will improve.
    b. Rain Guardian™ Bunker forebay.
    c. Planting completed by property owners with supervision (combination of plugs and 4-inch pots for grasses, sedges and forbs; #1 pots for shrubs).
    d. No design fee or contingency included assuming City and/or SWCD will provide design.
    e. Annual maintenance is assumed to be by property owner. Intermittent by City.
5. Iron-enhanced Sand Filter:
    a. Design fees included, no contingency included given ease of site construction and small footprint.
    b. Annual and intermittent maintenance by City includes annual surface loosening and periodic replacement of media every ten years.

Figure 5. Subwatershed E3 BMPs



F. Subwatershed E6 Strategies

This subwatershed is part of Watershed 6 and is centrally located in the City (**Figure 6**). The average annual loadings are 54,361 lbs-TSS/year and 173 lbs-TP/year. Based on the modeling exercise we suggest that bioretention, permeable parking, and full-spectrum detention be considered for further implementation analyses (**Table 8**). Refer to **Appendix C – Sub-surface Treatment Modeling Assumptions** for additional details.

Table 8. Subwatershed E6 Strategy Annual Performance and Strategy Value

	Pollutant Removal Relative to Outfall to River					
Alternative	**TSS**		**TP**		**Total Surface Area (ac)**	**Total BMPs**
	% Removed	**Lbs**	**% Removed**	**Lbs**		
Bioretention and/or Stormwater Planters	20	10,877	5	8	0.060	17
	30	16,308	9	16	0.125	36
	40	21,740	16	27	0.235	68
Permeable Parking	4	2,000	3	5	0.037	5
	4	2,333	4	7	0.074	10
Full Spectrum Detention (maximized to site)*	19	10,449	12	15	0.110	1

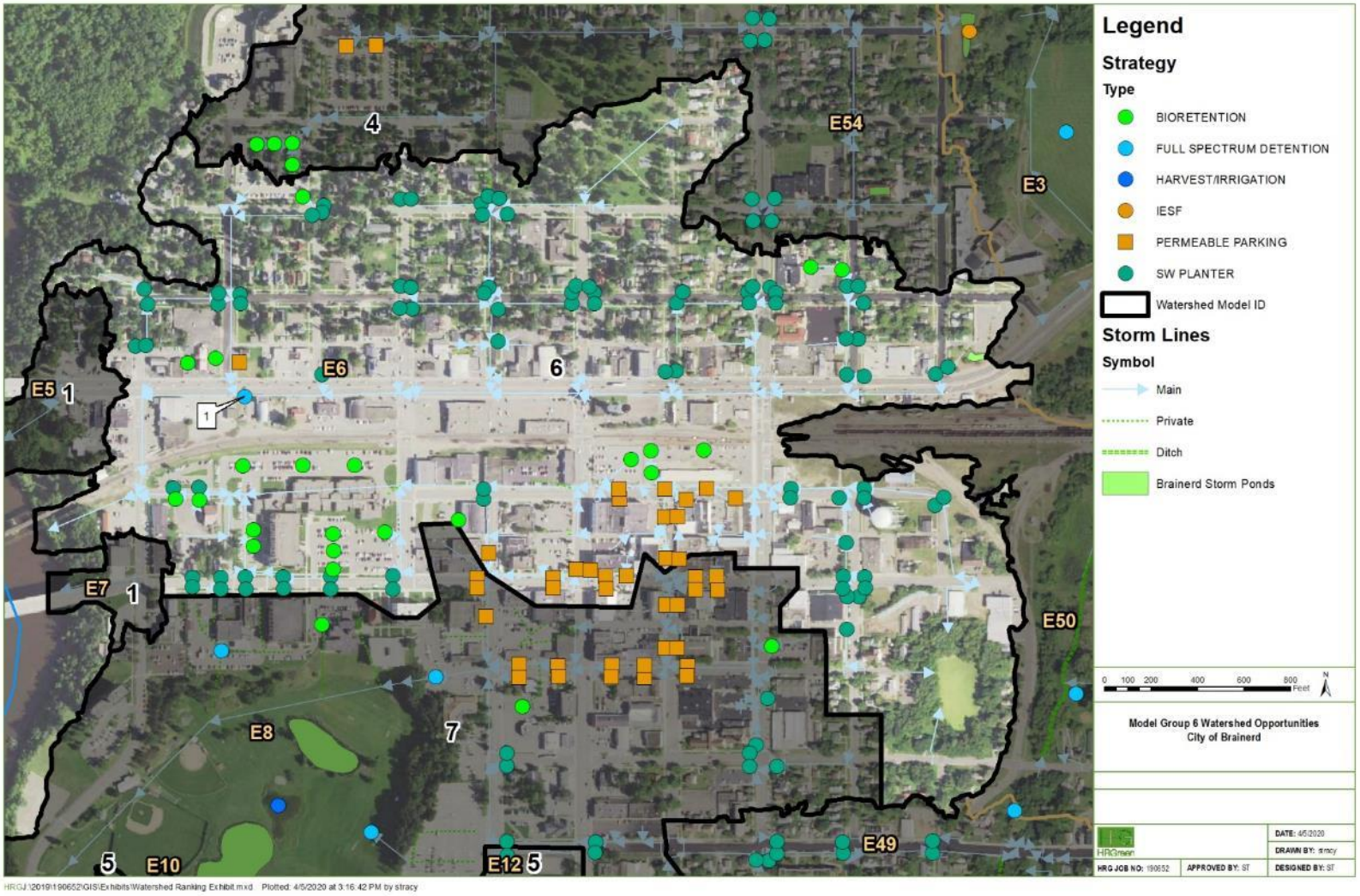
*Five, 60-in diameter by 120-lnft pipes (total of 0.27-acft storage), spaced 2 feet apart, with 1.25-in/hr infiltration. 12-inch outlet orifice places at center of one pipe (requires full feasibility study to validate). See Site 1 on Figure 5.

Alternative	**TSS Treatment Level (%)**	**Construction Cost**	**Maintenance Costs**		**Present Day Value**	**$/lb-TSS**	**$/lb-TP**
			Annual	**Intermittent**			
Bioretention and/or Stormwater Planters	20	$160,650	Home Owner	$8,500 (5-yr)	$182,785	$0.56	$761
	30	$340,200	Home Owner	$18,000 (5-yr)	$397,311	$0.81	$828
	40	$642,600	Home Owner	$ 34,000(5-yr)	$974,504	$1.49	$1,203
Permeable Parking	4	$85,758	$17,280	$13,541 (30-yr)	$336,151	$5.60	$2,241
	4	$171,464	$34,560	$27,073 (30-yr)	$672,248	$9.60	$3,201
Full Spectrum Detention	19	$292,768	$2,020	$3,440 (5-yr)	$329,385	$1.05	$732

Assumes:

1. City owns and operates all facilities.
2. Annual discount rate of 5.5%.
3. Bioretention costing $63/ft^2; retaining walls are assumed in this area.
    a. For conservancy, all bioretention is assumed to be designed as a filtering system with underdrain, media and connection to manhole structures. A valve control should be included in the underdrain system in case local soils facilitate infiltration. If infiltration is viable within 32 hours, treatment will double and the resulting $/LB-Pollutant value will improve.
    b. Rain Guardian™ Bunker forebay.
    c. Planting completed by property owners with supervision (combination of plugs and 4-inch pots for grasses, sedges and forbs; #1 pots for shrubs).
    d. No design fee or contingency included assuming City and/or SWCD will provide design.
    e. Annual maintenance by property owner. Intermittent maintenance is assumed to be performed by City.
4. Assumes no infiltration, no contingency fee or design fee; volunteer planting and annual maintenance, forebay, underdrain and connection to stormsewer and with retaining walls.
5. Bioretention maintenance: Property-owner responsibility and intermittent City remediation every 5 years = $500.
6. Permeable pavement maintenance: Vacuuming once per month for 6-month non-winter period, asphalt replacement at 30-years.
7. Full Spectrum Detention maintenance: Inspection once every three years, sediment removal once per year, corrective maintenance assumed once every 5 years.

Figure 6. Subwatershed E6 BMPs



G. Subwatershed E8 Strategies

This subwatershed is part of Watershed 7 and is centrally located in the City (**Figure 7**). The average annual loadings are 29,474 lbs-TSS/year and 94 lbs-TP/year. Based on the modeling exercise we suggest that bioretention, permeable parking, and full-spectrum detention be considered for further implementation analyses (**Table 9**). Refer to **Appendix C – Sub-surface Treatment Modeling Assumptions** for additional details

Table 9. Subwatershed E8 Strategy Annual Performance and Strategy Value

	Pollutant Removal Relative to Outfall to River					
Alternative	**TSS**		**TP**		**Total Surface Area (ac)**	**Total BMPs**
	% Removed	**Lbs**	**% Removed**	**Lbs**		
Bioretention and/or Stormwater Planters	7	2,011	2	2	0.007	2
	14	4,037	4	4	0.018	5
	20	6,025	7	7	0.035	10
Permeable Parking	11	3,258	7	7	0.037	5
	14	4,215	12	11	0.074	10
Site #2 Full Spectrum Detention (maximized to site)*	50	14,894	32	30.1	0.13	1

*Seven, 60-in diameter by 100-lnft pipes (0.32 ac-ft of storage), spaced 2 feet apart, with 1.25-in/hr infiltration. 12-inch outlet orifice places at center of one pipe (requires full feasibility study to validate).
Site #1 – small drainage area and likely too low return on investment compared to Site #2.
Site #4 – ground water elevation very close to surface (via NRCS Soils Survey). No live storage capacity available without constructing levees in floodplain. Limited increase in storage capacity by expanding ponds.
Site #3 – drains to open field, then existing ponds. See Site #4.

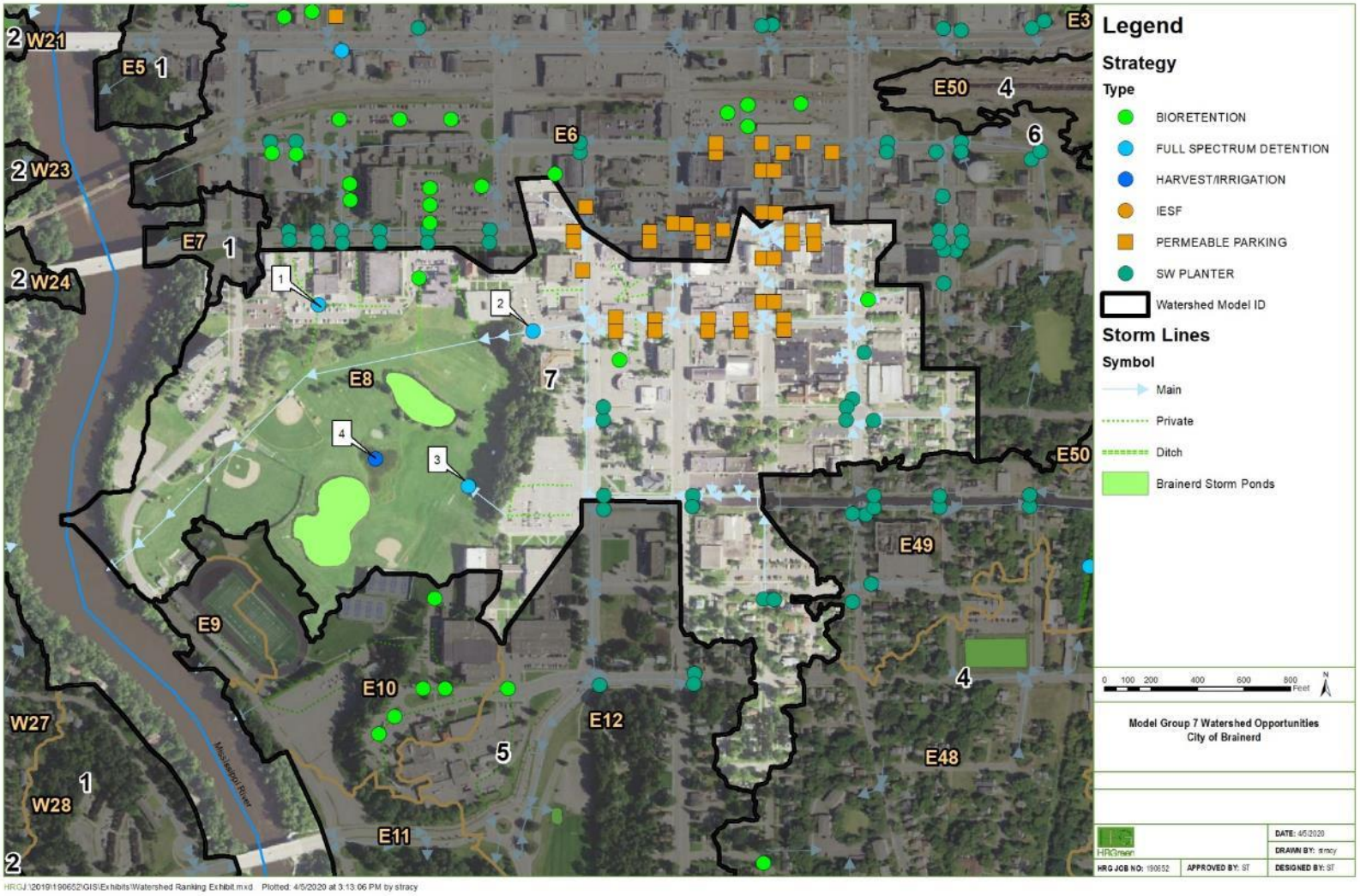
Alternative	**TSS Treatment Level (%)**	**Construction Cost**	**Maintenance Costs**		**Present Day Value**	**$/lb-TSS**	**$/lb-TP**
			Annual	**Intermittent**			
Bioretention and/or Stormwater Planters	7	$18,900	Home Owner	$1,000 (5-yr)	$21,504	$0.36	$358
	14	$47,250	Home Owner	$2,500 (5-yr)	$53,760	$0.44	$448
	20	$94,500	Home Owner	$5,000 (5-yr)	$107,521	$0.59	$512
Permeable Parking	11	$85,758	$17,280	$12,541 (30-yr)	$336,151	$3.44	$1,600
	14	$171,464	$34,560	$27,073 (30-yr)	$672,248	$5.32	$2,037
Site #2 Full Spectrum Detention (maximized to site)	50	$317,128	$2,020	$3,440 (5-yr)	$353,745	$0.79	$392

Assumes:

1. City owns and operates all facilities.
2. Annual discount rate of 5.5%.
3. Stormwater planters costing $35/ft^2 plus a 20% contingency fee and 20% Design Fee.
4. Bioretention costing $63/ft^2; retaining walls are assumed in this area.
    a. Designed as a filtering system with underdrain, media and connection to manhole structures. A valve control should be included in the underdrain system in case local soils facilitate infiltration. If infiltration is viable within 32 hours, treatment will double and the resulting $/LB-Pollutant value will improve.
    b. Rain Guardian™ Bunker forebay.
    c. Planting by property owners (plugs and 4-inch pots for grasses, sedges and forbs; #1 pots for shrubs).
    d. No design fee or contingency included assuming City and/or SWCD will provide design.
    e. Annual maintenance by property owner. Intermittent maintenance by City.

5. Permeable pavement maintenance: Vacuuming once per month for 6-month non-winter period, asphalt replacement at 30-years.
6. Full Spectrum Detention maintenance: Inspection once every three years, sediment removal once per year, corrective maintenance assumed once every 5 years.

Figure 7. Subwatershed E8 BMPs



IV. Summary and Recommendations

The results of this analysis considered multiple values for various strategies on retrofitting water quality best management practices (BMPs) within the City of Brainerd. The primary consideration when prioritizing strategies is their value relative to life-cycle cost and treatment performance. As the Mississippi River segment running through Brainerd is impaired for sediment, the cost of implementing strategies was evaluated relative to 30-years of costs and total suspended sediment treatment (TSS). The results were then ranked from highest value to lowest (i.e., lowest cost per pound of TSS to highest; **Table 10**). Given each of the City's subwatersheds were first evaluated based on their ability to provided multiple values beyond water quality treatment and subsequently prioritized, the City can be assured that each alternative strategy presented in this report yields the greatest comprehensive return on investment.

The overall cost of implanting each strategy identified in this report is approximately $3,000,000 with an expected TSS reduction of approximately 150,000 pounds and total phosphorus reduction of approximately 300 pounds (depending on selection of alternatives where more than one treatment level option exists for a strategy). These values reflect treatment above existing treatment provided by several existing ponds and raingardens within the City.

It is recommended that the City develops a capitol improvement plan for retrofitting water quality BMPs based on the results of this report as well as in combination with the top alternatives identified within the *Buffalo Creek Subwatershed – Stormwater BMP Retrofit Analysis.* Continued collaboration with the Crow Wing Soil and Water Conservation District and the Mississippi Headwaters Board will be vital to implementation success and funding acquisition outside of stormwater utility fees.

Table 10. Summary of Stormwater BMP Projects (in order of highest value of TSS treatment to lowest).

Subwatershed	Alternative	Construction Cost	Present Day Value	Pollutant Removal Relative to Outfall to River		$/lb-TSS	$/lb-TP
				TSS-Lbs Removed	TP-Lbs Removed		
E49/50	Site #1 Stormwater Wetland + IESF	$ 250,000	$ 281,380	54,832	152	$ 0.17	$ 62
E8	Bioretention and/or Stormwater Planters (7% TSS)	$ 18,900	$ 21,504	2,011	2	$ 0.36	$ 358
E8	Bioretention and/or Stormwater Planters (13% TSS)	$ 47,250	$ 53,760	4,037	4	$ 0.44	$ 448
E6	Bioretention and/or Stormwater Planters (20% TSS)	$ 160,650	$ 182,785	10,877	8	$ 0.56	$ 762
E8	Bioretention and/or Stormwater Planters (720% TSS)	$ 94,500	$ 107,521	6,025	7	$ 0.59	$ 512
E8	Site #2 Full Spectrum Detention (maximized to site)	$ 317,128	$ 353,745	14,894	30.1	$ 0.79	$ 392
E6	Bioretention and/or Stormwater Planters (30% TSS)	$ 340,200	$ 397,311	16,308	16	$ 0.81	$ 828
E6	Full Spectrum Detention	$ 292,768	$ 329,385	10,449	15	$ 1.05	$ 732
E54	Site #2 P3001 IESF	$ 119,060	$ 87,019	2,484	13	$ 1.17	$ 223
E6	Bioretention and/or Stormwater Planters (40% TSS)	$ 642,600	$ 974,504	21,740	27	$ 1.49	$ 1,203
E53	Bioretention and/or Stormwater Planters	$ 70,950	$ 85,273	1,674	4	$ 1.70	$ 711
E3	Bioretention and/or Stormwater Planters	$ 70,950	$ 85,273	1,674	4	$ 1.70	$ 711
E8	Permeable Parking (11% TSS)	$ 85,758	$ 336,151	3,258	7	$ 3.44	$ 1,601
E8	Permeable Parking (14% TSS)	$ 171,464	$ 672,248	4,215	11	$ 5.32	$ 2,037
E6	Permeable Parking (4a% TSS)	$ 85,758	$ 336,151	2,000	5	$ 5.60	$ 2,241
E6	Permeable Parking (4b% TSS)	$ 171,464	$ 672,248	2,333	7	$ 9.60	$ 3,201
W15/18	Pond P4002 IESF	$ 184,710	$ 149,130	282	13.8	$ 17.63	$ 360

V. Appendices

A. Figures

Figure 8: Subwatersheds, Topography, Water Resources, and Stormwater Infrastructure

Figure 9: Soils

Figure 10: Ground Water Protection Areas/DWSMA

Figure 11: Land Cover Classification

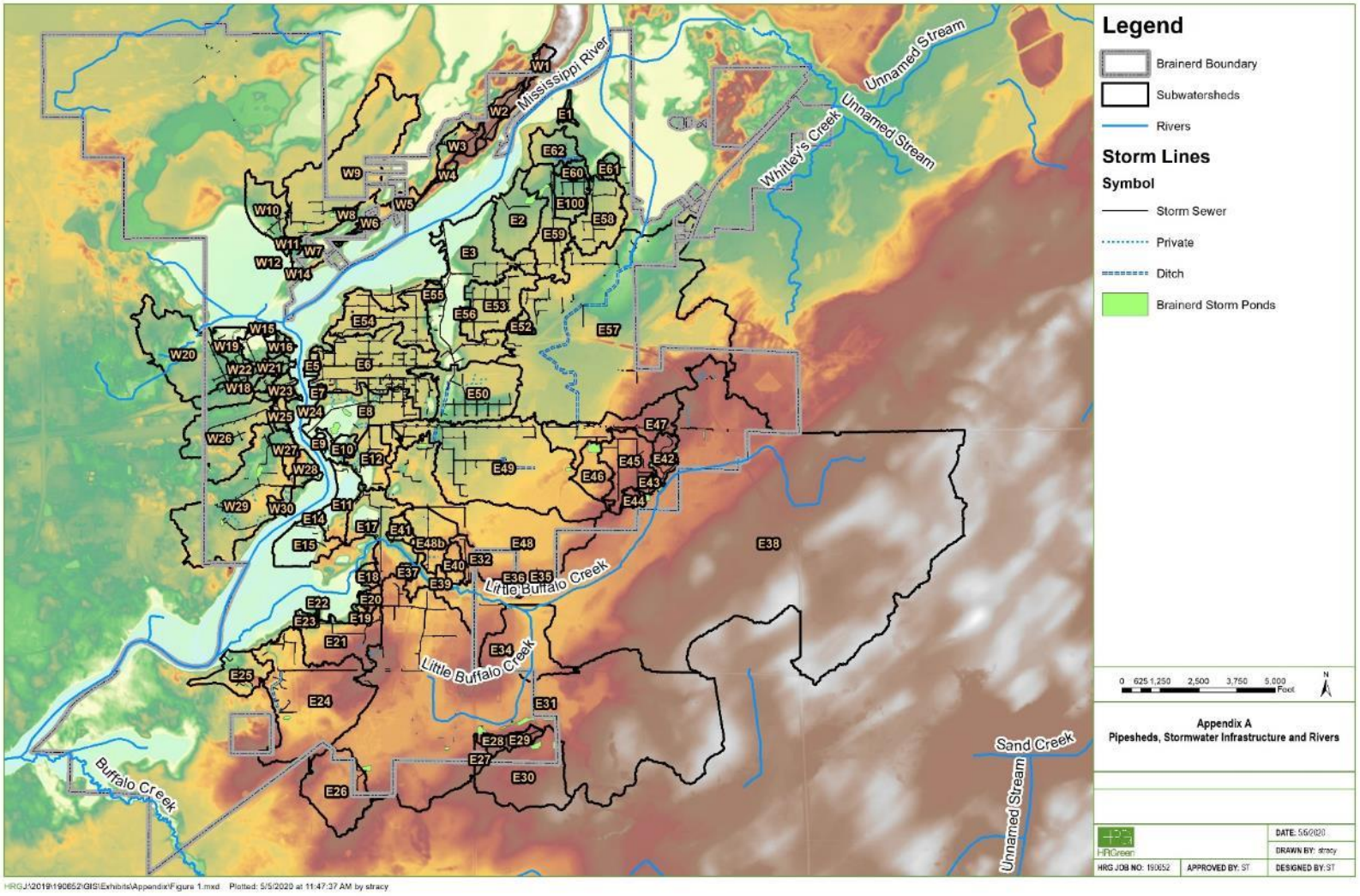
Figure 12: Public and Tax Forfeit Parcels

B. Prioritization and Screening Factors

C. Sub-surface Treatment Modeling Assumptions

APPENDIX A

Figure 8. Subwatersheds, Topography, Water Resources, and Stormwater Infrastructure.



APPENDIX A

Figure 9. Soils

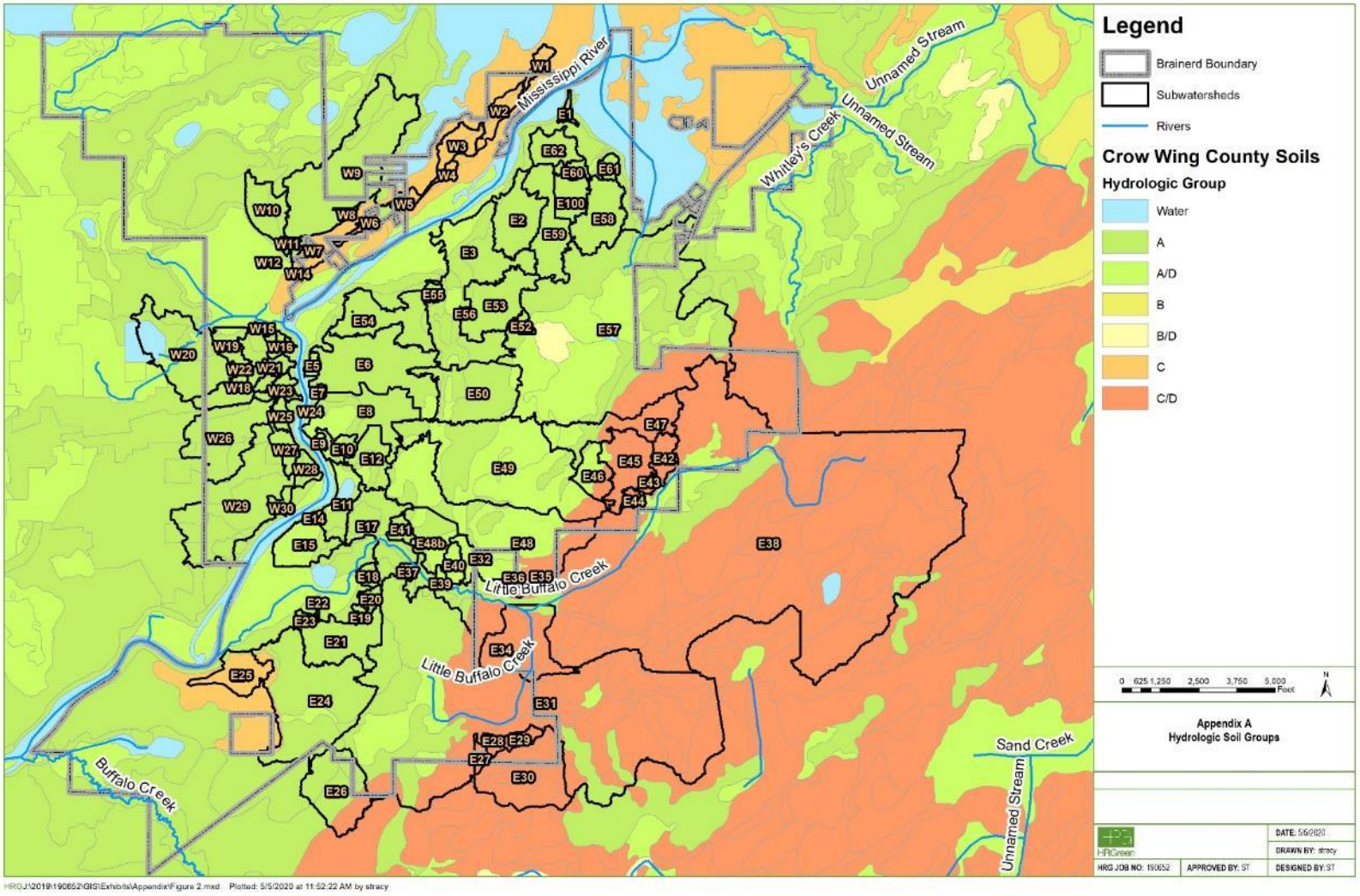


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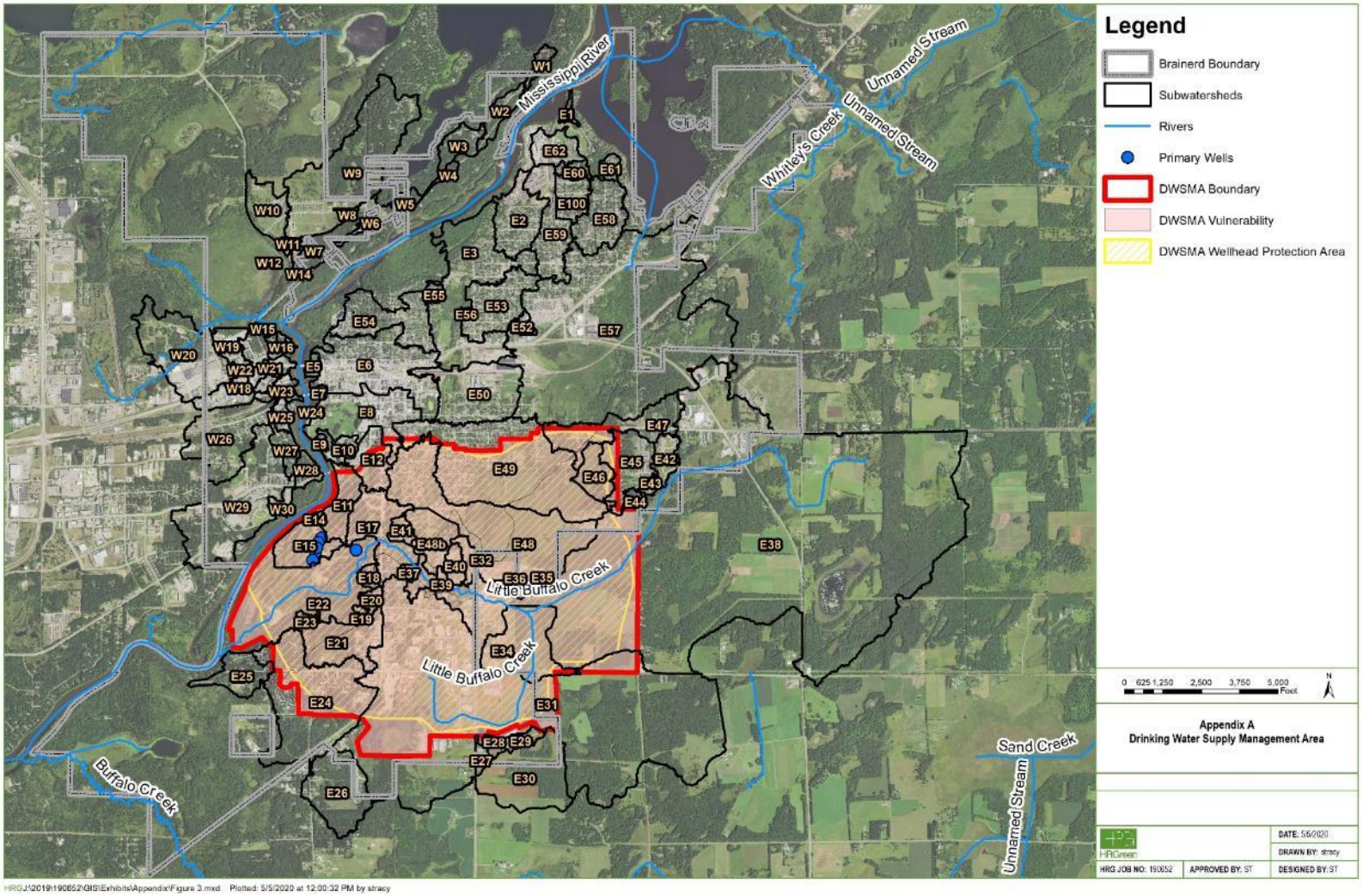
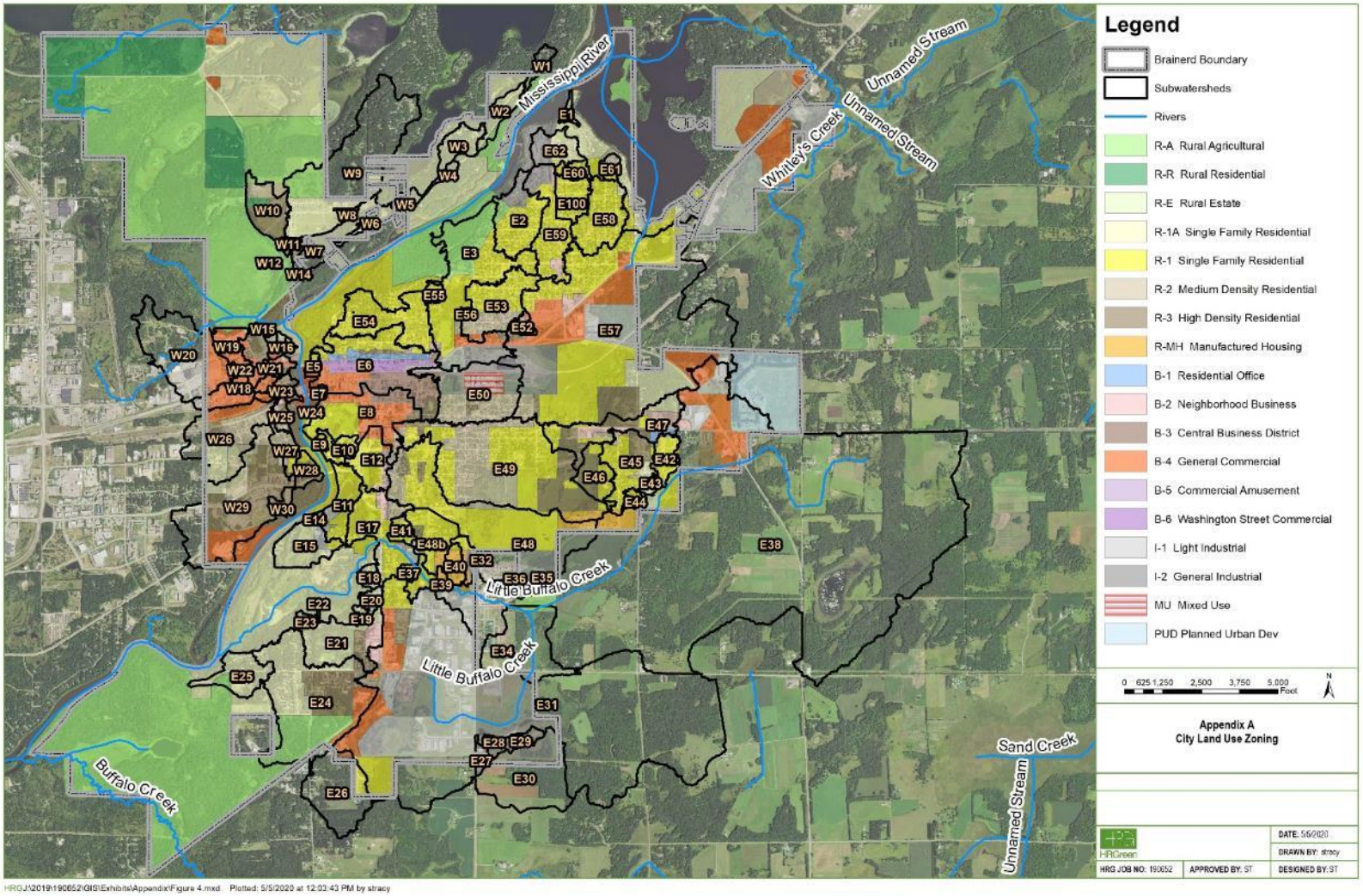
Figure 10. Ground Water Protection Areas/DWSMA



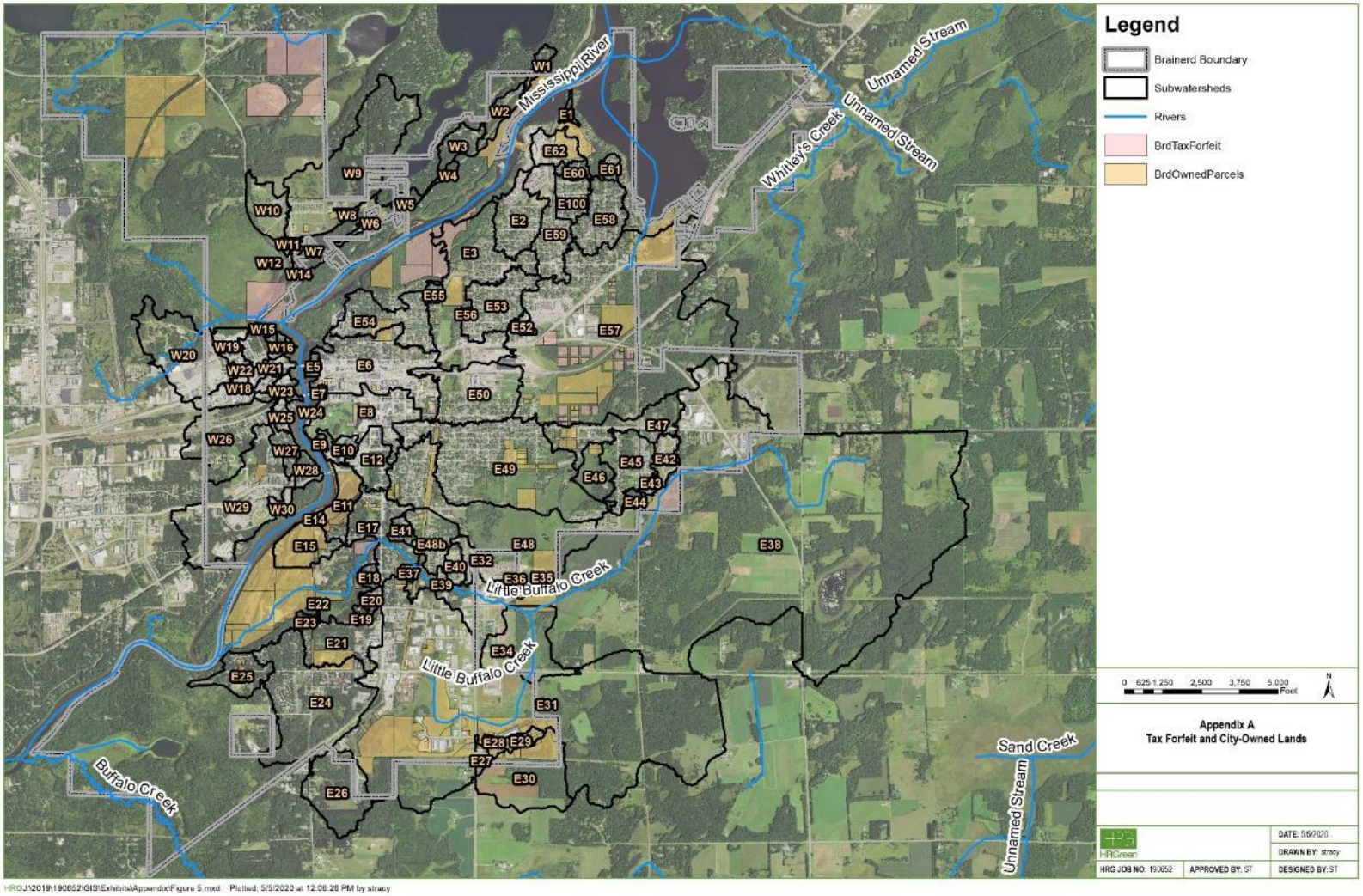
APPENDIX A

Figure 11. Land Cover Classification



APPENDIX A

Figure 12. Public and Tax Forfeit Parcels



Appendix B - Prioritization and Screening Factors

			Base Score					Weighting Multiplier
Metric	**Logic**	**Score Logic**	**1.0**	**0.75**	**0.5**	**0.25**	**0**	
Impervious reduction via Pavement Management Plan opportunities	This metric identifies where there may be opportunity for a realized savings on pairing water quality retrofits/upgrades during road replacement or utility projects.	High priority score to areas with identified CIP projects	Very high percentage of roads within area is part of CIP		Around half of roads within area is part of CIP		No roads within area is part of CIP	1
End of pipe opportunities	This metric identifies where regional treatment opportunities exist, which are typically less expensive than most retrofitting options.	High priority score to areas that other watersheds flow through, or can or does contain a regional treatment location, or represents a subwatershed bordering the river acting as a discharge point	Subwatersheds with a regional treatment opportunity located near the end of the watershed, as well as subwatersheds that other subwatersheds flow through	Subwatersheds with full spectrum detention and borders the river, but only services its own area	Subwatersheds with full spectrum detention and may or may not service other areas, but do not border the river	Only borders the river, but does not contain any other additional end-of-pipe benefits	Does not contain regional treatment and other watersheds do not flow through this area	5
Existing pond retrofit opportunities	Pond retrofits regularly return the greatest value on investment. They are easy to install, they exist on public land and are easy to maintain.	High priority score to areas that contain existing ponds	Either two ponds or one regional pond are present inside the subwatershed for retrofit opportunities	N/A	One non-regional pond is present inside the subwatershed for retrofit opportunity	N/A	No ponds present	1
Aesthetic and/or ecological enhancement benefit opportunities	These opportunities are easy to accommodate with above-ground green infrastructure or stormwater wetlands at no extra cost.	Areas with higher number of above ground naturalized strategies identified	The subwatershed with the most planter box or rain garden opportunities per acre is awarded 1 point	N/A	Subwatersheds are given a pro-rated score based upon the number of opportunities the best subwatershed has. A subwatershed with half the opportunities per acre of the best subwatershed will receive a 0.5		No planter box or rain garden opportunities are present within the watershed	0.75
Recent development requiring modern treatment permitting	Developments that were implemented under modern stormwater regulations are generally assumed to meet treatment levels equivalent of 1-inch of rain runoff. Though that resulting volume and pollutant load differs between land cover, it is generally assumed these areas are lower priority because treating runoff to higher levels than this generally yield rapidly decreasing incremental cost-benefit value.	Newly developed areas are deprioritized from analysis due to improved regulations	Developed under no stormwater regulation	N/A	N/A	N/A	Developed under new stormwater regulation	1
High concentration of industrial and public lands	Government buildings, libraries, and schools are public facilities. Working on public parcels is substantially easier when it comes to marketing and assurances of regular maintenance. Public projects also provide tangible examples of stormwater BMPs agencies and the City may choose to promote.	Areas with a higher number of institutional or public areas are prioritized higher	Very high percentage of land use within area is Institutional, public, park, school, etc.	N/A	Around half of area within watershed is institutional, public, park, school, etc.	N/A	No land use within area is institutional, public, park, school, etc.	0.5

Appendix C – Sub-surface Treatment Modeling Assumptions

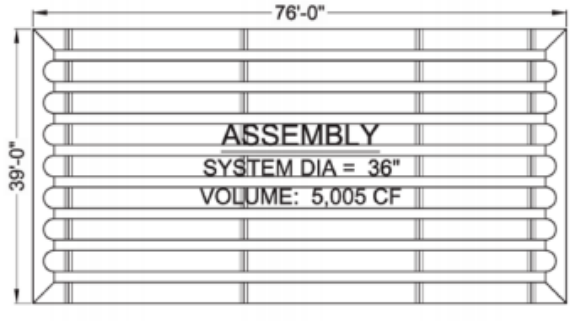
Full Spectrum Detention

Highly urbanized landscapes can dictate the use of sub-surface storage of stormwater for rate and quality control. There are several proprietary systems available that typically come in the form of linked prefabricated arches, pipes or reinforced boxes with 100% void space. In several cases in Minnesota, reclaimed stormwater pipes salvaged from utility upgrades have been used for this purpose. The selection of a system is driven primarily by structural needs, seasonally high ground water elevations and whether an open-bottomed, infiltration system or close-bottom detention system is desired and feasible. These systems have also been used to store water to settle sediments, and then pumped to a second open bottomed cell for infiltration. They have also been used to harvest water for irrigation augmentation, alleviating ground water consumption and also reducing volume to improve water quality.

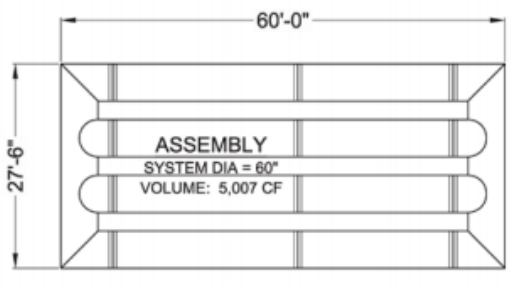
It is recommended that a corrugated metal pipe (CMP; Aluminized Steel Type 2) be considered for detaining and/or infiltrating stormwater. It is further recommended that the system de designed with the first pipe in the system (or a manifold of 2 pipes) be reserved as a sediment forebay to reduce impacts to infiltration, as well as facilitate ease of system maintenance. CMP detention systems are available from several manufacturers. The following description is from Contech Engineered Solutions:

- Various pipe coatings and materials are available to accommodate site-specific needs: Aluminized Steel Type 2 (ALT2), Galvanized, CORLIX® Aluminum, and Polymeric. Aluminized Steel Type 2 is recommended in areas using salt on roadways.
- Wide range of gages, corrugations, and shapes, in diameters 12” – 144”.
- Pipe can be fully or partially perforated for infiltration or groundwater recharge applications.
- Custom access risers and manifolds provide direct access for maintenance.
- Outlet control devices can be incorporated within the system, eliminating the need for a separate structure.
- Customizable - a variety of fittings allow CMP to match most layout configurations.
- May be designed for heavy loading and high maximum cover.

To maximize storage while minimizing site impacts and the costs of excavation, welding, structures and fittings, etc., pipe diameters should be maximized in similar fashion to System 2, below (*source*: Contech).



System 1



System 2

Executive Director Report

July - August 2020

Personnel, Budget, Administration, Information & Education, Correspondence

1. Reviewed monthly budget.
2. Prepared monthly agenda packet.
3. Sent in monthly expense report.
4. Reviewed potential variances that may be coming before the Board next month.
5. Updated MHB website.
6. Sold Guidebook to a Dick Pula.
7. Responded back to 6 inquiries about Canoe Day.

Meetings & Networking

1. Held meeting with Baxter, CWSWCD, and HRGreen to discuss a plan B for the Whiskey Creek project. City administrator, Brad Chapulis, will talk with Good Sam to see if they will extend the option to purchase until December 2020. He will approach the city council August 4th and see if the council could look to a city purchase of the property. If they are willing, a Clean Water Fund grant can be written to pay for almost $1M in environmental restoration of the property. If the council is not willing to buy, than we will have to apply to the LCCMR and hope to receive funding in 2022 to buy the land. Crow Wing SWCD submitted Clean Water Fund grant for $890,000, but control of land will be a key decision.
2. Attended Morrison county board meeting to get approval for recreational signage. I need to return to them and get more information on kiosk material cost so they can make a decision with certainty. Morrison county staff attended a meeting later on that month and was able to provide details regarding kiosk cost and the MOU was signed.
3. Attended video conference with Shawn Tracy to determine response to the city of Baxter about process to move forward with different grant scenarios.
4. Attended Canoe day which was well attended with approximately 45 people attending. Kayaks and canoes were available for rental and Sen. Carrie Rudd provided a water quality/recreational speech for the event.
5. Had a short conversation with Rich Coutemanche, Aitkin Land Comm., about our signage program and potential, new campsites to be built on Miss. River.
6. Had conversation with Carver county about supporting MN Traditions.
7. Attended zoom meeting hosted by Rotary Jill Pietrusinski in which they are planning a national Miss. River clean up day at the end of Sept. The goal is to increase membership in Rotary through a cause. Not quite sure how this relates to our organization, but Rotary is getting an app to do data collecting tool to take picture of trash and GPS locate it. Corporate partners could help fund clean up campaigns. Global grants.
8. Provided comments to section 4 of the Upper Miss. 1W1P.

9. Provided comments to Baxter CWF stormwater application.
10. Talked with landowner about building structure on Miss. River.
11. Talked with landowner about possible wetland violation in the city of Bena. Provided him with name and phone number of who to call regarding this matter and requested that he have a parcel ID number so that the county can check into it.