Table F.1. Capital Improvement Program

Note: See project descriptions following the tables. PSC = Pioneer-Sarah WMC

Year	Project	Project Name	Total Cost	Commission Share	Priority	Cost per lb.	Potential Funding Source(s)	Actual 2014	Actual 2015	Actual 2016	2017	2018	2019	2020
CAPITAL PROJECTS														
2014-	ME-1	Lake Ardmore infiltration basin	30,000	3,000	Complete		PSC, Medina		3316.35					
2015	IN-1	Lake Sarah curlyleaf pondweed treatment	40,000	4,000	Complete		PSC, Ind, Grfld, lake assn	2104.73	1011.26					
	IN-2	~~Hydrologic restorations: HR 67, 68, 29, and 33~~	200,000	20,000			PSC, Independence	Projects infeasible or lacking owner participation. Will be addressed at development						
	ME-2	~~Lake Independence curlyleaf pondweed treatment~~	122,000	12,200			PSC, Med, Ind, lake assn	Treatment not in TMDL. May resubmit project in future						
		Subtotal	**$392,000**	**$39,200**										
2016	GR-3	Dance Hall Creek BMPs	200,000	10,000			PSC, Greenfield, grants	302.46						
	GR-4	~~Feedlot improvements: Dance Hall Creek~~	35,000	1,750			PSC, Greenfield, grants	No willing landowner opportuntites						
	GR-9	~~Buffer strips: Dance Hall Creek~~	35,000	1,750			PSC, Greenfield, grants	No willing landowner opportuntites						
	GR-11	~~Control carp population: other lakes~~	10,000	500			PSC, Greenfield, DNR, grants	Moved to 2020. Front-end assessments required.						
	IN-3	Lake Sarah curlyleaf pondweed treatment	32,000	3,200	Complete		PSC, Ind, Grfld, lake assn			8986.3				
	IN-4	Gully restorations: GS50 (design)	120,000	12,000	In Process		PSC, Independence, grants			5204.65				
	ME-4	~~Lake Ardmore neighborhood projects~~	80,000	8,000	Redundant		PSC, Medina, grants	Redundant with new, specific CIPs resulting from SWA. 2017-2020 ME projects						
		Subtotal	**$512,000**	**$37,200**										
2017	IN-5	Lake Sarah curlyleaf pondweed treatment	26,000	2,600			PSC, Indep, Grfld, lake assn				2,600			
	IN-7	Raingardens in targeted areas	75,000	7,500			PSC, Indep, property owners				7,500			
	IN-9	Shoreline restoration – Sarah and Independence	125,000	12,500			PSC, Ind, Grfd, Medina, property owners, grants				12,500			
	GR-4	Feedlot improvements: Dance Hall Creek	35,000	1,750			PSC, Greenfield, grants							
	GR-9	Buffer strips: Dance Hall Creek	35,000	1,750			PSC, Greenfield, grants							
	2017 IN-3	Wetland Restoration 1 Kazin Property	92,205	23,051	High	$549/lb	PSC, Indep, County Grant, NRCS, EQUIP				23,051			
		Subtotal	**$388,205**	**$49,151**										
2018	GR-3	Hafften, Schendel, Schwauppauff BMPs	100,000	10,000			PSC, Greenfield, grants							
	IN-6	Lake Sarah curlyleaf pondweed treatment	20,000	2,000			PSC, Ind, Grfld, lake assn							
	2017 ME-1	Fern St Gully Stabilization	18,850	4,713	High	$277/lb	PSC - $4,713, City, grants					48,276		
	2017 ME-2	Fern St Iron Enhanced Sand Filter	87,500	21,875		$1411/lb	PSC - $21,875, City, grants							
	2017 ME-3	Aspen Ave Pond Enlargement PD3	51,550	12,888		$2343/lb	PSC - $12,888, City, grants							
	2017 ME-4	Medina Boat Launch Shoreline Restora SR1	22,000	5,500		$550/lb	PSC - $5,500, City, grants							
	2017 ME-5	Stream Stabiliza-creek b'tween Lakes Ardmore & Inde	13,200	3,300		$3300/lb	PSC - $3,300, City, grants							
	MP-6	South Ravine cleanup	260,000	26,000			PSC, Maple Plain, grants					26,000		
	2017 IN-4	Wetland Restoration 18	559,205	139,801	Medium	$707/lb	PSC, Independence, County Grant, NRCS, EQUIP					139,801		
	2017 ME_IN-1	Baker Park Reserve Campground Ravine Stabiliza	485,000	10,500	High	$181/yr	PSC, cities, BWSR CWF Grant, county grant					10,500		
		Subtotal	**$1,617,305**	**$236,577**										
2019-	ME-5	Sediment sampling in Lake Independence	18,500	1,850	Complete		PSC, Medina, Ind, 3 Rivers	Completed in _____ by TRPD. No funds req'd from Comm.?						
2020	IN-8	Sediment sampling in Lake Sarah	12,000	1,200			PSC, Independence, Greenfield						1,200	
	GR-11	Control carp population: Lake Sarah / other lakes	10,000	500			PSC, Greenfield, DNR, grants						500	
	IN-9	Shoreline restoration – Sarah and Independence	125,000	12,500			PSC, Ind, Med, Grfld, property owners, grants						12,500	

Table F.1. Capital Improvement Program

Note: See project descriptions following the tables. PSC = Pioneer-Sarah WMC

Year	Project	Project Name	Total Cost	Commission Share	Priority	Cost per lb.	Potential Funding Source(s)	Actual 2014	Actual 2015	Actual 2016	2017	2018	2019	2020
	GR-4	Feedlot improvements	35,000	1,750			PSC, Greenfield, grants							
	IN-2	Hydrologic restorations GS50 (install)	200,000	20,000			PSC, Independence, grants						20,000	
	ME-6	Tomahawk Trail wetland project	230,000	23,000			PSC, Medina, grants						0	23,000
	2017 IN-1	JB Gully Stabilization	75,000	18,750	High	$300/lb	PSC, Ind, County, MPCA, Lake Assn						18,750	
	2017 IN-2	Hydrologic restoration 95 Koch property	61,205	15,300	High	$317-$481/lb	PSC, Independence, County Grant, NRCS, EQUIP						15,300	
	2017 IN-5	Wetland Restoration 91	529,205	79,380	Low	$1447/lb	PSC, Independence, County Grant, NRCS, EQUIP						79,380	
	2017 IN-6	Wetland Restoration 105	543,205	81,481	Medium	$845/lb	PSC, Independence, County Grant, NRCS, EQUIP						81,481	
	2017 IN-7	Seasonal Pond 77	10,420	2,605	High	$366/lb	PSC, Independence, County Grant						2,605	
	2017 MI-1	South Whaletail Lake Alum Treatment	200,000	5,000	High	$55/lb	PSC, city, BWSR CWF Grant, county grant							5,000
		Subtotal	**$1,849,535**	**$258,316**										
SPECIAL STUDIES														
2015	MP-4	Ravine study	3,000	300	In Process		PSC, Maple Plain				300			
2015	ME-3	Lake Independence Subwatershed Assessment	15,000	1,500	Complete		PSC, Medina	Completed in May 2014 by Anoka SWCD, no funds requested from Comm.?						
2018	GR-1	Subw Assess-Hafften, Schendel, Schwauppauff	20,000	1,000			PSC, Greenfield					1,000		
		Subtotal	**$38,000**	**$2,800**										
OTHER PROJECTS COMPLETED														
2014		Lake Indepenence Outlet Construction						426.63						
		Lake Independence Bullrush Restoration						1307.8						
2015		Lake Independence Weir Construction at Outlet		$318 spent out of Operating Budget										
2016		Lake Ardmore Subwatershed Assessment								218.25				
		SUBTOTAL	**$4,797,045**	**$623,244**				**$ 4,142**	**$ 4,328**	**$ 14,409**	**$ 45,951**	**$ 225,577**	**$ 231,716**	**$ 28,000**
Capital Projects Account Est January 1 Balance								**10109.6**	**$25,968**	**$41,640**	**$55,231**	**$37,280**	**($160,297)**	**($364,013)**
Annual Capital Projects Fund Contribution								20,000	20,000	28,000	28,000	28,000	28,000	28,000
Estimated Expenditures								4,142	4,328	14,409	45,951	225,577	231,716	28,000
Capital Projects Account Estimated December 31 Balance								**$25,968**	**$41,640**	**$55,231**	**$37,280**	**($160,297)**	**($364,013)**	**($364,013)**
No Year Assigned														
	GR-3,4,9	Ongoing Dance Hall Creek BMPs		???			PSC, City, Grants				15,000	15,000	15,000	15,000
	CIP-7	Lindgren Lane Pond	100,000	10,000										
	CIP-8	Koch's/Mill's Creek Inlet Ponds (now HR 97 and 29)	200,000	20,000										
	CIP-11	Manure Management Cost-Share Projects	250,000	25,000										
	LO-1	~~Chippewa Road Drainage~~	21,000	2,100	Complete		Project completed by city in 2016 - $21,710, No request for funds from Commission							
	LO-2	Creekview Road Drainage	21,000	2,100										
	LO-3	Retention Pond mapping and cleanup	10,000	1,000										
	LO-4	Ditch Cleaning at Ballpark	10,000	1,000										
	LO-5	Sediment Pond Cleanout	25,000	2,500										
	LO-6	Sediment Pond Cleanout	80,000	8,000										
	MP-1	Drainageway Cleaning –E of Budd	55,000	5,500										
	MP-2	Rock checks, Main St Ravine	23,700	2,370										
	MP-3	Washout, Main St Ravine	8,000	800										
	MP-5	North Ravine Cleanup	286,000	28,600										

Table F.1. Capital Improvement Program

Note: See project descriptions following the tables. PSC = Pioneer-Sarah WMC

Year	Project	Project Name	Total Cost	Commission Share	Priority	Cost per lb.	Potential Funding Source(s)	Actual 2014	Actual 2015	Actual 2016	2017	2018	2019	2020
		Subtotal	**$1,089,700**	**$108,970**										
Other Projects Funded (non CIP funds)														
		Lake Independence Weir Construction at Outlet							238.37					
	TOTAL COST		**$5,886,745**	**$732,214**										
Other Related Local Projects, No Commission Contribution														
	GR-2	Whisper Creek WWTP	**$500,000**	**$ -**										

EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

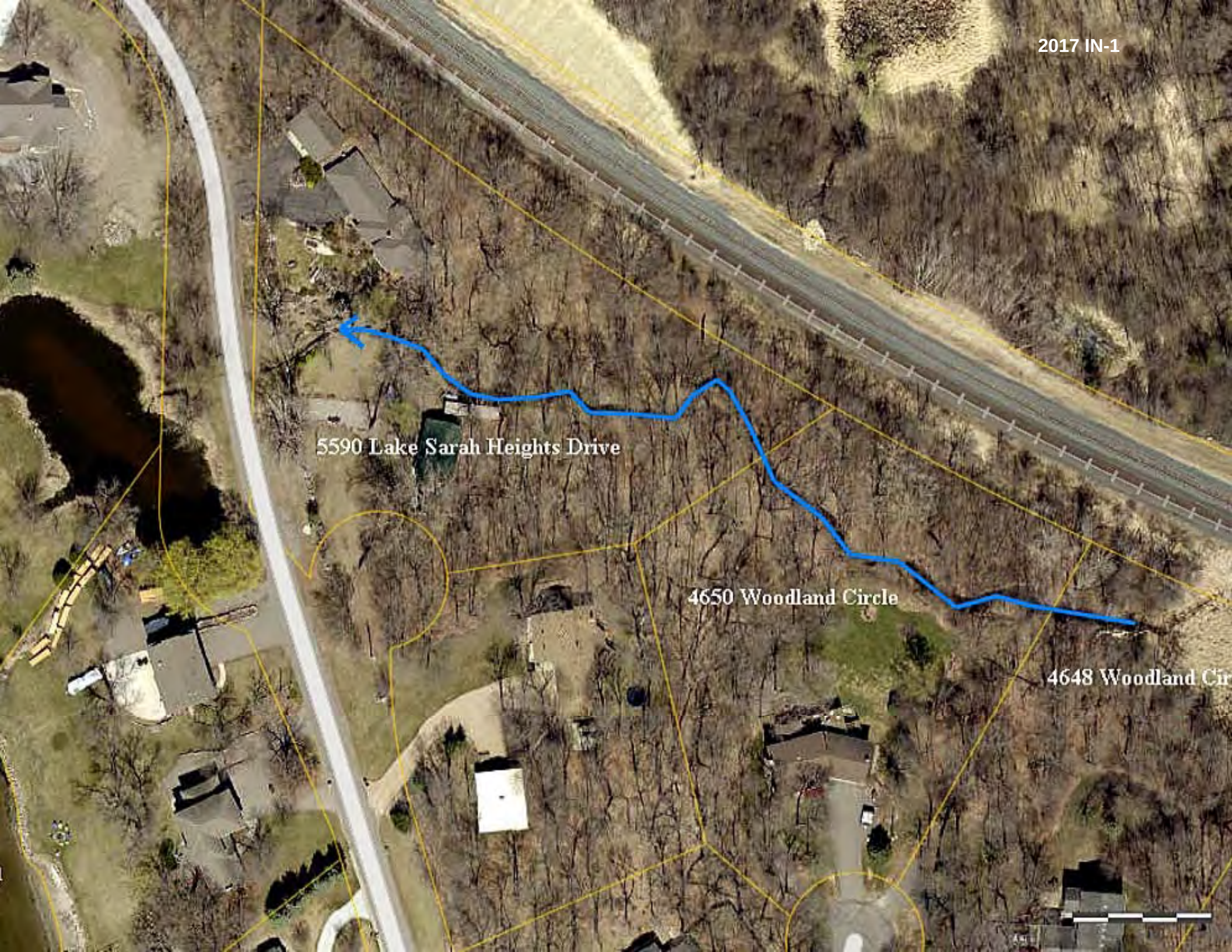
City	Independence
Contact Name	Joe Baker
Telephone	612-868-8702
Email	Joe_Baker@cargill.com
Address	4648 Woodland Circle, 4650 Woodland Circle and 5590 Lake Sarah Heights Drive, Independence.
Project Name	JB Gully Stabilization

	1. Is project in Member's CIP? ( ) yes (X) no	Proposed CIP Year = 2019-2020
	2. Has a feasibility study or an engineering report (circle one) been done for this project? ( ) yes (X) no	

		Amount
	Total Estimated Project Cost	$75,000
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$18,750
	Other Funding Sources (name them) City/Hennepin County/MPCA 319/Lake Sarah Association.	$56,250
		$

	3. What is the scope of the project? **Grade, install rock cross vanes, rip rap, bioengineering and revegetation on 700 feet of actively eroding gully areas at 4648 Woodland Circle, 4650 Woodland Circle and 5590 Lake Sarah Heights Drive, Independence. This gully drains into Lake Sarah**
	4. What is the purpose of the project? What water resource(s) will be impacted by the project? **Reduce nutrient and TSS loads to Lake Sarah by approximately 8.4 ton/year and 12.5 lbs/year respectively.**
	5. What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.) **Assume moderate to slight recession rates (ft/yr) of 0.10. Gully length = 700' Area = 700x5= 3,500 sq. ft. Volume=3500x0.1= 350 cubic feet/year. 350 cu.ft./yr= 33,250 lbs/soil loss per year. 33,350/2000 = 16.6 ton/year. TP per ton = 1.5 lbs. 16.6 x 1.5 = 25 lbs/year**
	6. How does the project contribute to achieving the goals and programs of the Commission? **Reduces phosphorus loads into Lake Sarah by approximately 12.5 lbs/year (assumed delivery rate of 0.5)**
0/10	7. Does the project result from a regulatory mandate? ( ) yes (X) no How?
0/10/20	8. Does the project address one or more TMDL requirements? (X) yes ( ) no Which? Nutrient load reduction.
0/10/20	9. Does the project have an educational component? ( ) yes (X) no Describe.
0/10	10. Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project? ( ) yes ( ) no Identify the LGUs.
10/20	11. Is the project in all the LGUs' CIPs? ( ) yes ( ) no

1-34	(*For TAC use)* 12. Does project improve water quality? (0-10) 13. Prevent or correct erosion? (0-10) 14. Prevent flooding? (0-5)	15. Promote groundwater recharge? (0-3) 16. Protect and enhance fish and wildlife habitat? (0-3) 17. Improve or create water recreation facilities? (0-3)
TOTAL (poss 114)		


2017 IN-1
5590 Lake Sarah Heights Drive
4650 Woodland Circle
4648 Woodland Cir

2017 IN-2

EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

City	Independence
Contact Name	Joe Baker
Telephone	612-868-8702
Email	Joe_baker@cargill.com
Address	
Project Name	Hydrologic Restoration 95. Koch Property structure

	1. Is project in Member's CIP? ( ) yes ( ) no	Proposed CIP Year =
	2. Has a feasibility study or an engineering report (circle one) been done for this project? (X) yes ( ) no	

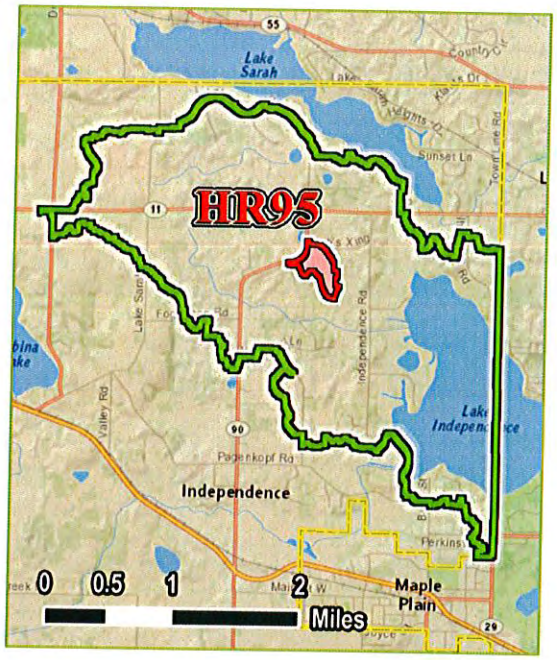
		Amount
	Total Estimated Project Cost (construction costs/easement costs)	$23,750/$27,500
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$15,300
	Other Funding Sources (name them) NRCS EQUIP? Up to 75% from---SWCD State Cost Share? Hennepin Co Good Steward Grant?	$45,900
		$61,205

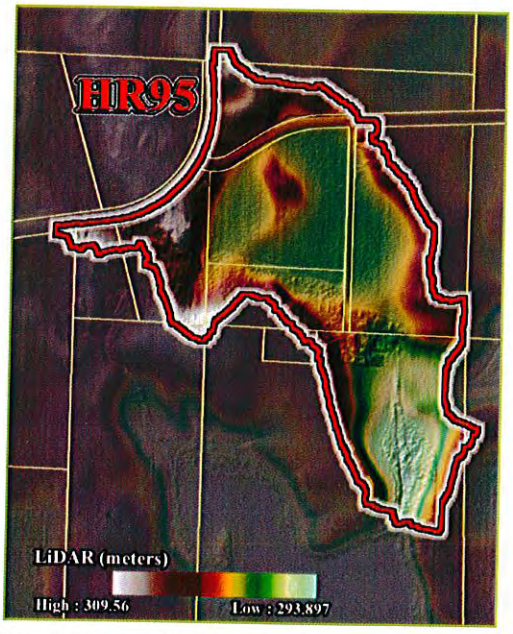
	3. What is the scope of the project? The site is partially drained. This project would install berm and outlet control structure to increase water levels to pre-historic elevations.
	4. What is the purpose of the project? What water resource(s) will be impacted by the project? Reduce TP/TSS to Lake Independence by 19,000 and 9.64 pounds/year respectively.
	5. What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.) Area treated will be ~3 acres.
	6. How does the project contribute to achieving the goals and programs of the Commission? Reduces external TP/TSS loads to Lake Independence per TMDL
0/10	7. Does the project result from a regulatory mandate? ( ) yes (X) no How?
0/10/20	8. Does the project address one or more TMDL requirements? (X) yes ( ) no Which? External TP/TSS loads to Lake Independence
0/10/20	9. Does the project have an educational component? ( ) yes (X) no Describe.
0/10	10. Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project? (X) yes ( ) no Identify the LGUs. City of Independence is the WCA LGU on this site.
10/20	11. Is the project in all the LGUs' CIPs? (X) yes ( ) no This project was identified in the City's Lake Sarah and Lake Independence Stormwater Retrofit Anaylsis.

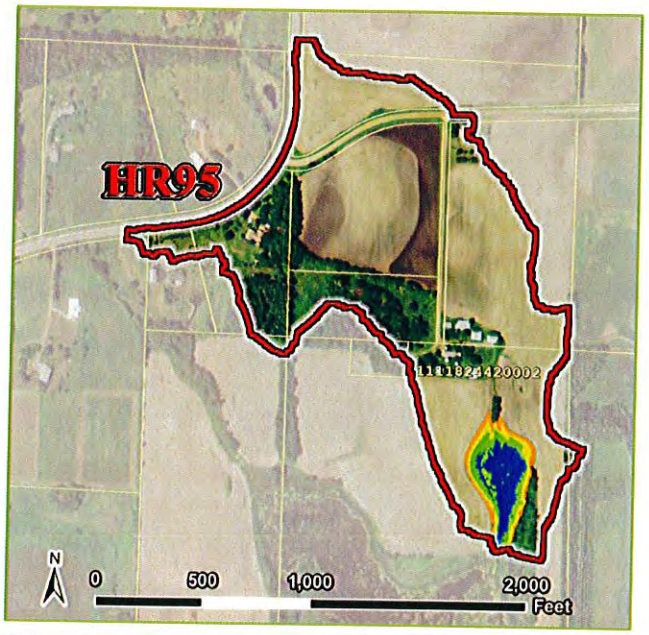
1-34	(*For TAC use)* 12. Does project improve water quality? (0-10) 13. Prevent or correct erosion? (0-10) 14. Prevent flooding? (0-5)	15. Promote groundwater recharge? (0-3) 16. Protect and enhance fish and wildlife habitat? (0-3) 17. Improve or create water recreation facilities? (0-3)
TOTAL (poss 114)		

HR95 Restoration Elev.	Pool Area (acres)	Loading TP lbs/yr	Loading TSS lbs/yr	Loading Volume ac-ft/yr	Reductions TP lbs/yr	Reductions TSS lbs/yr	Reductions Volume ac-ft/yr	% Reduction TP lbs/yr	% Reduction TSS lbs/yr	% Reduction Volume ac-ft/yr
Initial Conditions	0	27.87	23334	40.85	N/A	N/A	N/A	N/A	N/A	N/A
Pool to 961 ft	1.1	23.71	16738	40.12	4.16	6596	0.73	14.9%	28.3%	1.8%
Pool to 962 ft	1.9	21.52	12121	39.47	6.35	11213	1.38	22.8%	48.1%	3.4%
Pool to 963 ft	2.4	19.46	7421	39.15	8.41	15913	1.70	30.2%	68.2%	4.2%
Pool to 964 ft	2.8	18.23	4452	38.92	9.64	18882	1.93	34.6%	80.9%	4.7%

Site Summary – HR95 – 964 Pool elev.	
Water Body	Lake Independence
Treatment Watershed (ac)	46.2
Dominant Land Cover	Agriculture
Installation Type	Box Weir
Installation Cost ($)	$7,500
Easement Cost ($)	$27,500
Promo/Design/Admin ($)	$16,205
Maintenance ($/20yrs)	$10,000
Total 20 Year Cost ($)	$61,205
Project Life (yrs)	20
$/lb-TP removal/yr	$317
$/lb-TSS removal/yr	$.16
$/ac-ft volume removal/yr	$1,586







2017 IN-3

EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

City	Independence
Contact Name	Joe Baker
Telephone	612-868-8702
Email	Joe_baker@cargill.com
Address	
Project Name	Wetland Restoration 1. Kazin Property structure

	1. Is project in Member's CIP? ( ) yes ( ) no	Proposed CIP Year = 2017
	2. Has a feasibility study or an engineering report (circle one) been done for this project? (X) yes ( ) no	

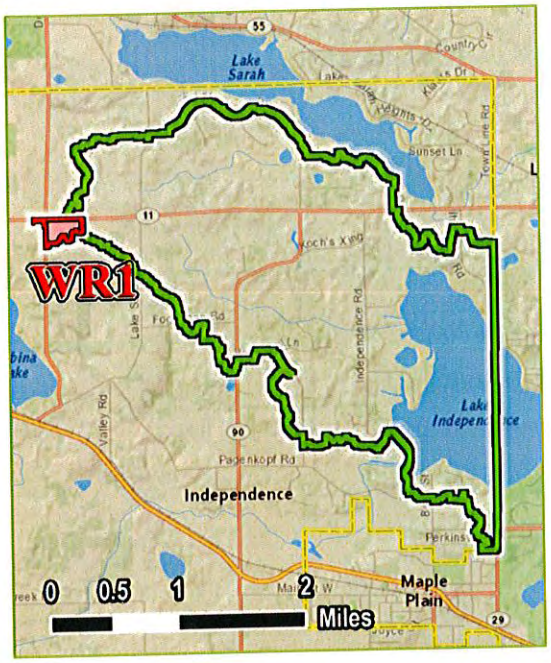
		Amount
	Total Estimated Project Cost (construction costs/easement costs)	$92,205
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$23,051
	Other Funding Sources (name them) NRCS EQUIP? Up to 75% from---SWCD State Cost Share? Hennepin Co Good Steward Grant?	$69,153
		$92,205

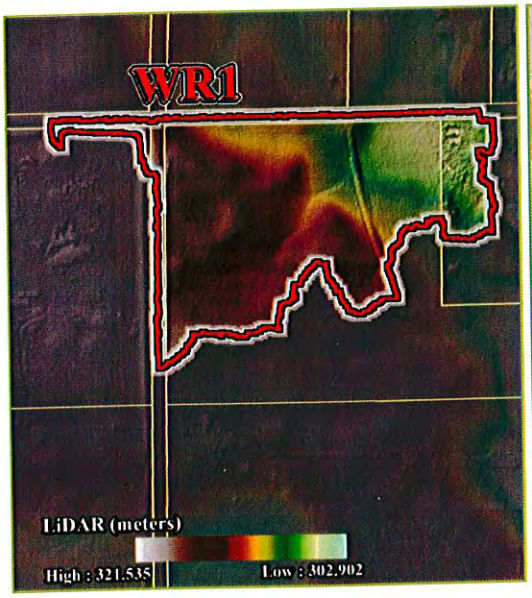
	3. What is the scope of the project? The site is partially drained. This project would install berm and outlet control structure to increase water levels to pre-historic elevations.
	4. What is the purpose of the project? What water resource(s) will be impacted by the project? Reduce TP/TSS to Lake Independence by 6,926 and 8.39 pounds/year respectively… or $549 per lb of P per year.
	5. What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.) Area treated will be ~3 acres.
	6. How does the project contribute to achieving the goals and programs of the Commission? Reduces external TP/TSS loads to Lake Independence per TMDL
0/10	7. Does the project result from a regulatory mandate? ( ) yes (X) no How?
0/10/20	8. Does the project address one or more TMDL requirements? (X) yes ( ) no Which? External TP/TSS loads to Lake Independence
0/10/20	9. Does the project have an educational component? ( ) yes (X) no Describe.
0/10	10. Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project? (X) yes ( ) no Identify the LGUs. City of Independence is the WCA LGU on this site.
10/20	11. Is the project in all the LGUs' CIPs? (X) yes ( ) no This project was identified in the City's Lake Sarah and Lake Independence Stormwater Retrofit Anaylsis.

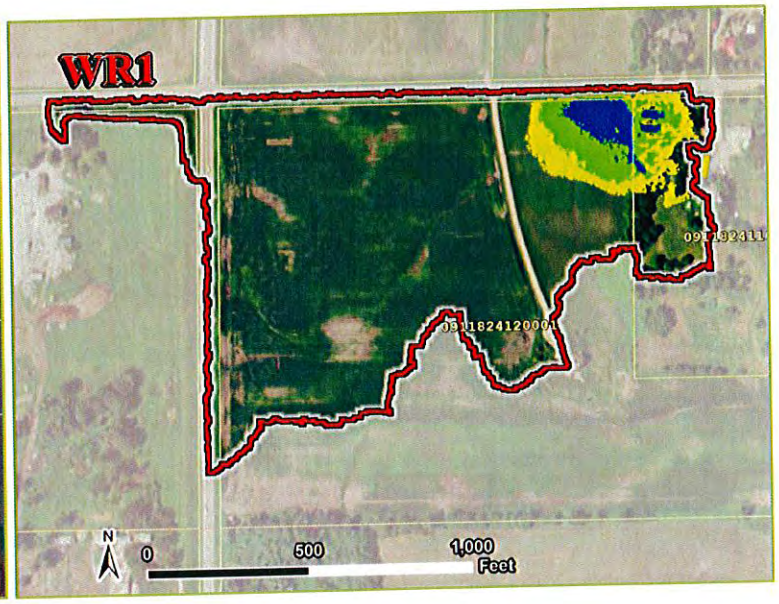
1-34	(*For TAC use)* 12. Does project improve water quality? (0-10) 13. Prevent or correct erosion? (0-10) 14. Prevent flooding? (0-5)	15. Promote groundwater recharge? (0-3) 16. Protect and enhance fish and wildlife habitat? (0-3) 17. Improve or create water recreation facilities? (0-3)
TOTAL (poss 114)		

WR1 Restoration Elev.	Pool Area (acres)	Loading TP lbs/yr	Loading TSS lbs/yr	Loading Volume ac-ft/yr	Reductions TP lbs/yr	Reductions TSS lbs/yr	Reductions Volume ac-ft/yr	% Reduction TP lbs/yr	% Reduction TSS lbs/yr	% Reduction Volume ac-ft/yr
Initial Conditions	0	15.37	13,695	26.34	N/A	N/A	N/A	N/A	N/A	N/A
Pool to 1007 ft	0.7	11.54	13,013	25.17	3.83	682	1.17	24.9%	5.0%	4.4%
Pool to 1008 ft	1.7	8.97	10,861	23.90	6.40	2,834	2.44	41.6%	20.7%	9.3%
Pool to 1009 ft	2.9	6.98	6,769	22.95	8.39	6,926	3.39	54.6%	50.6%	12.9%

Site Summary – WR1 – 1009 Pool elev.	
Water Body	Lake Independence
Treatment Watershed (ac)	29.4
Dominant Land Cover	Agriculture
Installation Type	Box Weir
Installation Cost ($)	$8,000
Easement Cost ($)	$58,000
Promo/Design/Admin ($)	$16,205
Maintenance ($/20yrs)	$10,000
Total 20 Year Cost ($)	$92,205
Project Life (yrs)	20
$/lb-TP removal/yr	$549
$/lb-TSS removal/yr	$.67
$/ac-ft volume removal/yr	$1,360







2017 IN-4

EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

City	Independence
Contact Name	Joe Baker
Telephone	612-868-8702
Email	Joe_baker@cargill.com
Address	
Project Name	Wetland Restoration 18. Multiple properties

	1. Is project in Member's CIP? ( ) yes ( ) no	Proposed CIP Year = 2018
	2. Has a feasibility study or an engineering report (circle one) been done for this project? (X) yes ( ) no	

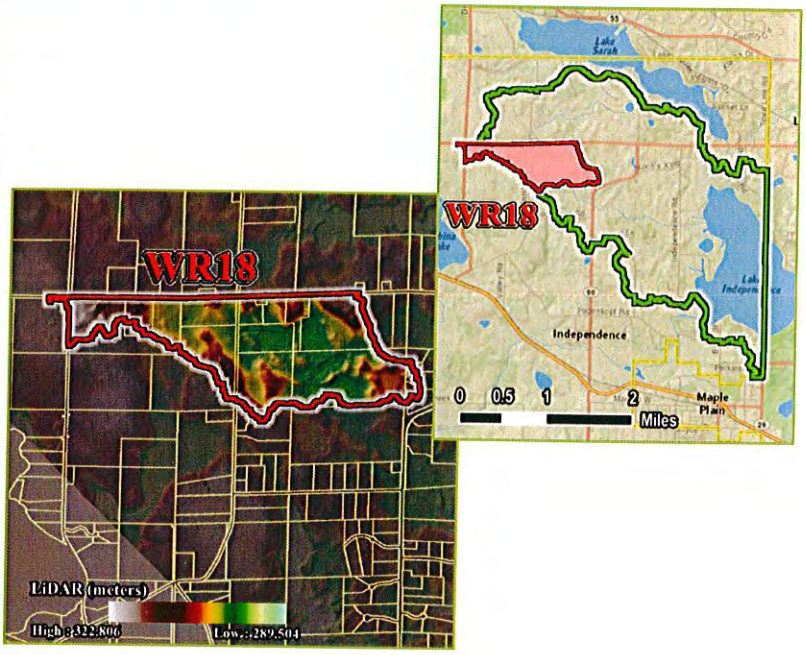
		Amount
	Total Estimated Project Cost (construction costs/easement costs)	$559,205
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$139,801
	Other Funding Sources (name them) NRCS EQUIP? Up to 75% from---SWCD State Cost Share? Hennepin Co Good Steward Grant?	$419,404
		$559,205

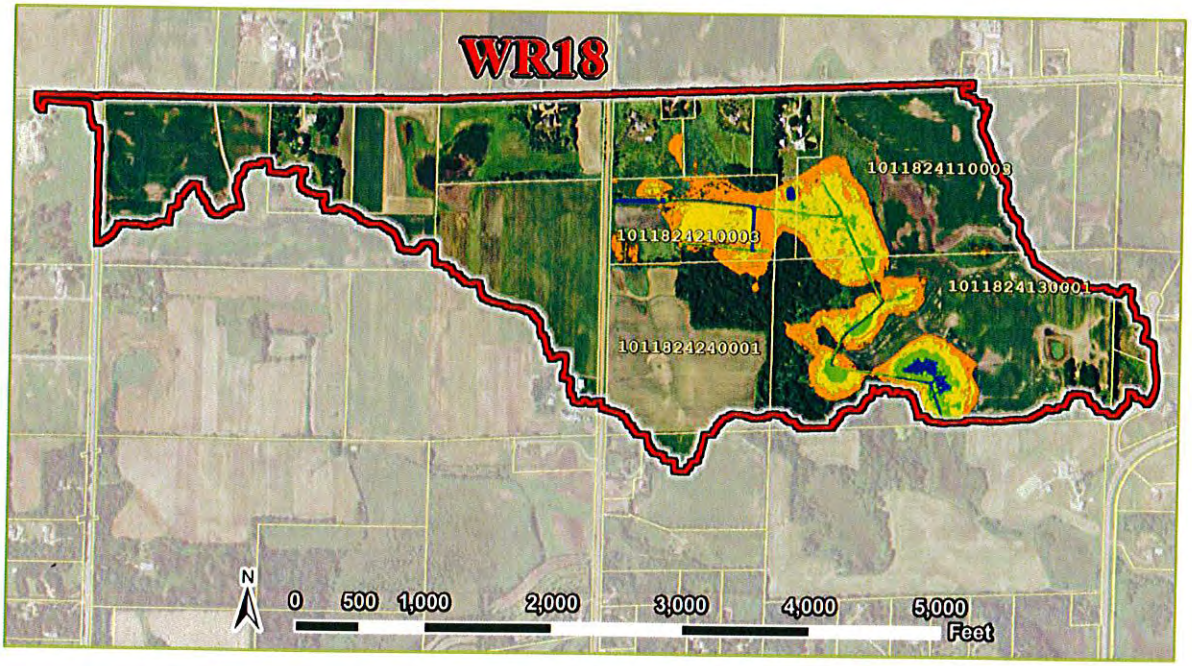
	3. What is the scope of the project? The site is partially drained. This project would install a channel weir control structure to increase water levels to pre-historic elevations.
	4. What is the purpose of the project? What water resource(s) will be impacted by the project? Reduce TP/TSS to Lake Independence by 21,162 and 39.5 pounds/year respectively… or $707 per lb of P per year.
	5. What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.) The pooling area will be 44.3 acres.
	6. How does the project contribute to achieving the goals and programs of the Commission? Reduces external TP/TSS loads to Lake Independence per TMDL
0/10	7. Does the project result from a regulatory mandate? ( ) yes (X) no How?
0/10/20	8. Does the project address one or more TMDL requirements? (X) yes ( ) no Which? External TP/TSS loads to Lake Independence
0/10/20	9. Does the project have an educational component? ( ) yes (X) no Describe.
0/10	10. Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project? (X) yes ( ) no Identify the LGUs. City of Independence is the WCA LGU on this site.
10/20	11. Is the project in all the LGUs' CIPs? (X) yes ( ) no This project was identified in the City's Lake Sarah and Lake Independence Stormwater Retrofit Anaylsis.

1-34	(*For TAC use)* 12. Does project improve water quality? (0-10) 13. Prevent or correct erosion? (0-10) 14. Prevent flooding? (0-5)	15. Promote groundwater recharge? (0-3) 16. Protect and enhance fish and wildlife habitat? (0-3) 17. Improve or create water recreation facilities? (0-3)
TOTAL (poss 114)		

WR18 Restoration Elev.	Pool Area (acres)	Loading TP lbs/yr	Loading TSS lbs/yr	Loading Volume ac-ft/yr	Reductions TP lbs/yr	Reductions TSS lbs/yr	Reductions Volume ac-ft/yr	% Reduction TP lbs/yr	% Reduction TSS lbs/yr	% Reduction Volume ac-ft/yr
Initial Conditions	0	101.35	70725	230.93	N/A	N/A	N/A	N/A	N/A	N/A
Pool to 978 ft	2.0	94.11	70168	230.78	7.24	557	0.15	7.1%	0.8%	0.06%
Pool to 979 ft	6.9	87.99	68497	229.94	13.36	2228	0.99	13.2%	3.2%	0.43%
Pool to 980 ft	25.2	72.40	60701	225.94	28.95	10024	5.05	28.6%	14.2%	2.19%
Pool to 981 ft	44.3	61.81	49563	220.97	39.54	21162	9.96	39.0%	29.9%	4.31%

Site Summary – WR18 – 981 Pool elev.	
Water Body	Lake Independence
Treatment Watershed (ac)	312.1
Dominant Land Cover	Agriculture
Installation Type	Channel Weir
Installation Cost ($)	$25,000
Easement Cost ($)	$508,000
Promo/Design/Admin ($)	$16,205
Maintenance ($/20yrs)	$10,000
Total 20 Year Cost ($)	$559,205
Project Life (yrs)	20
$/lb-TP removal/yr	$707
$/lb-TSS removal/yr	$1.32
$/ac-ft volume removal/yr	$2,807





2017 IN-5

EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

City	Independence
Contact Name	Joe Baker
Telephone	612-868-8702
Email	Joe_baker@cargill.com
Address	
Project Name	Wetland Restoration 91. Multiple properties

	1. Is project in Member's CIP? ( ) yes ( ) no	Proposed CIP Year = 2019
	2. Has a feasibility study or an engineering report (circle one) been done for this project? (X) yes ( ) no	

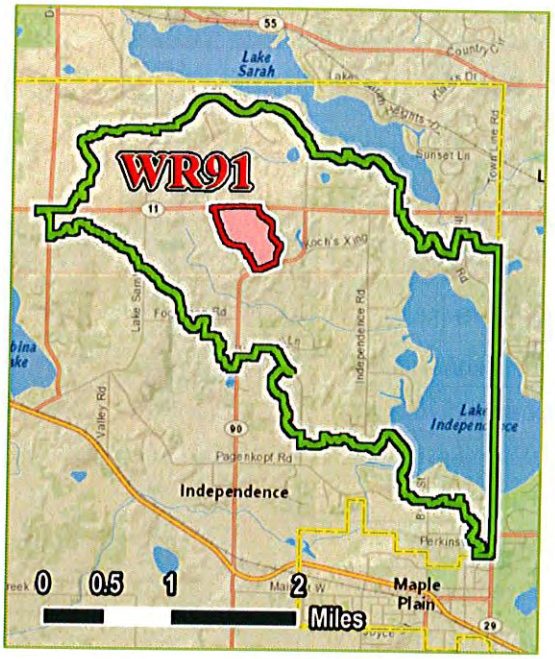
		Amount
	Total Estimated Project Cost (construction costs/easement costs)	$529,205
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$79,380 (15%)
	Other Funding Sources (name them) NRCS EQUIP? Up to 75% from---SWCD State Cost Share? Hennepin Co Good Steward Grant?	$396,903
	City of Independence share	$52,922

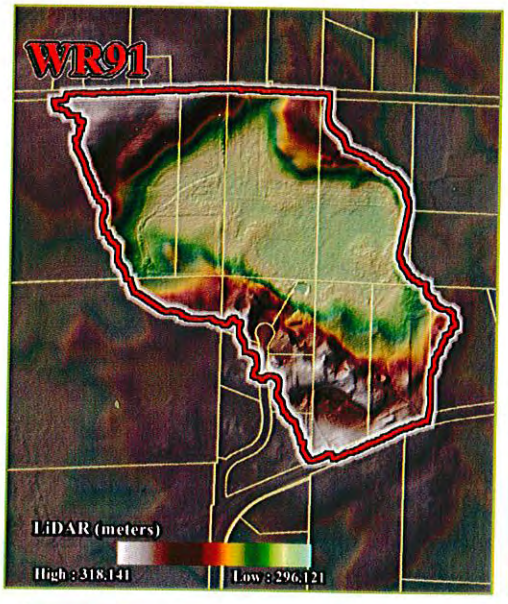
	3. What is the scope of the project? The site is partially drained. This project would install a channel weir control structure to increase water levels to pre-historic elevations.
	4. What is the purpose of the project? What water resource(s) will be impacted by the project? Reduce TP/TSS to Lake Independence by 17,068 and 18.3 pounds/year respectively… or $1,447 per lb of P per year.
	5. What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.) The pooling area will be 23.9 acres.
	6. How does the project contribute to achieving the goals and programs of the Commission? Reduces external TP/TSS loads to Lake Independence per TMDL
0/10	7. Does the project result from a regulatory mandate? ( ) yes (X) no How?
0/10/20	8. Does the project address one or more TMDL requirements? (X) yes ( ) no Which? External TP/TSS loads to Lake Independence
0/10/20	9. Does the project have an educational component? ( ) yes (X) no Describe.
0/10	10. Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project? (X) yes ( ) no Identify the LGUs. City of Independence is the WCA LGU on this site.
10/20	11. Is the project in all the LGUs' CIPs? (X) yes ( ) no This project was identified in the City's Lake Sarah and Lake Independence Stormwater Retrofit Anaylsis.

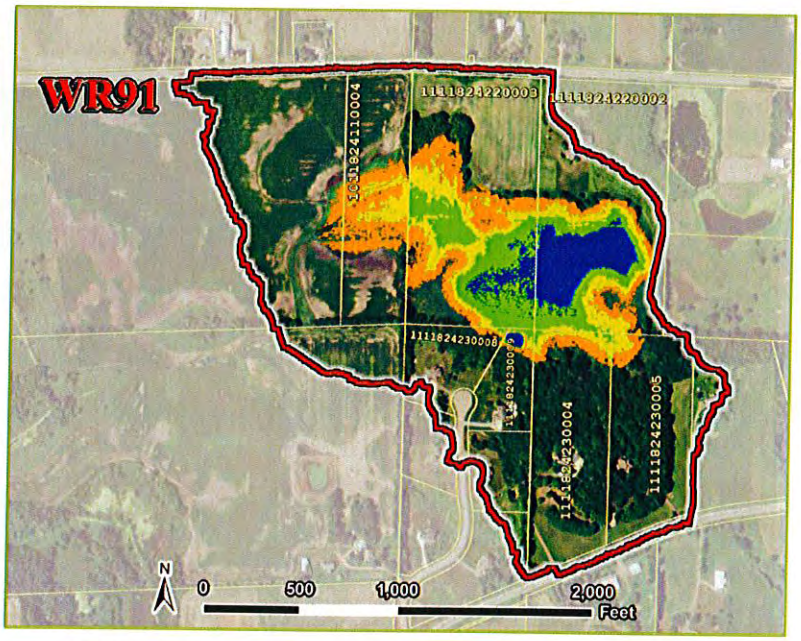
1-34	(*For TAC use)* 12. Does project improve water quality? (0-10) 13. Prevent or correct erosion? (0-10) 14. Prevent flooding? (0-5)	15. Promote groundwater recharge? (0-3) 16. Protect and enhance fish and wildlife habitat? (0-3) 17. Improve or create water recreation facilities? (0-3)
TOTAL (poss 114)		

WR91 Restoration Elev.	Pool Area (acres)	Loading TP lbs/yr	Loading TSS lbs/yr	Loading Volume ac-ft/yr	Reductions TP lbs/yr	Reductions TSS lbs/yr	Reductions Volume ac-ft/yr	% Reduction TP lbs/yr	% Reduction TSS lbs/yr	% Reduction Volume ac-ft/yr
Initial Conditions	0	36.75	25776	77.44	N/A	N/A	N/A	N/A	N/A	N/A
Pool to 977 ft	4.4	31.70	25602	75.69	5.05	174	1.75	13.7%	0.7%	2.3%
Pool to 978 ft	10.4	26.82	23512	74.17	9.93	2264	3.27	27.0%	8.8%	4.2%
Pool to 979 ft	16.0	21.95	14107	72.20	14.80	11669	5.24	40.3%	45.3%	6.8%
Pool to 980 ft	23.9	18.46	8708	69.64	18.29	17068	7.80	49.8%	66.2%	10.1%

Site Summary – WR91 – 980 Pool elev.	
Water Body	Lake Independence
Treatment Watershed (ac)	97.6
Dominant Land Cover	Agriculture
Installation Type	Channel Weir
Installation Cost ($)	$25,000
Easement Cost ($)	$238,000
Promo/Design/Admin ($)	$16,205
Maintenance ($/20yrs)	$10,000
Total 20 Year Cost ($)	$289,205
Project Life (yrs)	20
$/lb-TP removal/yr	$791
$/lb-TSS removal/yr	$0.85
$/ac-ft volume removal/yr	$1,854







2017 IN-6

EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

City	Independence
Contact Name	Joe Baker
Telephone	612-868-8702
Email	Joe_baker@cargill.com
Address	
Project Name	Wetland Restoration 105. Multiple properties

	1. Is project in Member's CIP? ( ) yes ( ) no	Proposed CIP Year = 2019
	2. Has a feasibility study or an engineering report (circle one) been done for this project? (X) yes ( ) no	

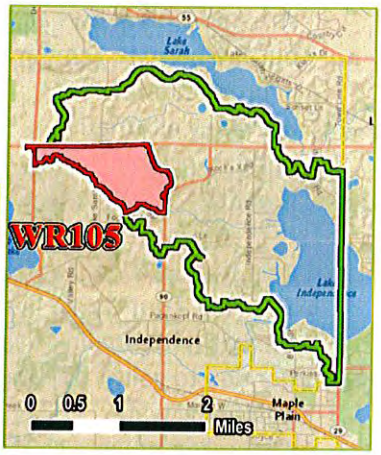
		Amount
	Total Estimated Project Cost (construction costs/easement costs)	$543,205
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$81,481 (15%)
	Other Funding Sources (name them) NRCS EQUIP? Up to 75% from---SWCD State Cost Share? Hennepin Co Good Steward Grant?	$407,403
	City of Independence share	$54,321

	3. What is the scope of the project? The site is partially drained. This project would install a box weir control structure to increase water levels to pre-historic elevations.
	4. What is the purpose of the project? What water resource(s) will be impacted by the project? Reduce TP/TSS to Lake Independence by 52,825 and 32.1 pounds/year respectively… or $845 per lb of P per year.
	5. What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.) The pooling area will be 35.9 acres.
	6. How does the project contribute to achieving the goals and programs of the Commission? Reduces external TP/TSS loads to Lake Independence per TMDL
0/10	7. Does the project result from a regulatory mandate? ( ) yes (X) no How?
0/10/20	8. Does the project address one or more TMDL requirements? (X) yes ( ) no Which? External TP/TSS loads to Lake Independence
0/10/20	9. Does the project have an educational component? (X) yes ( ) no Describe.
0/10	10. Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project? (X) yes ( ) no Identify the LGUs. City of Independence is the WCA LGU on this site.
10/20	11. Is the project in all the LGUs' CIPs? (X) yes ( ) no This project was identified in the City's Lake Sarah and Lake Independence Stormwater Retrofit Anaylsis.

1-34	(*For TAC use)* 12. Does project improve water quality? (0-10) 13. Prevent or correct erosion? (0-10) 14. Prevent flooding? (0-5)	15. Promote groundwater recharge? (0-3) 16. Protect and enhance fish and wildlife habitat? (0-3) 17. Improve or create water recreation facilities? (0-3)
TOTAL (poss 114)		

WR105 Restoration Elev.	Pool Area (acres)	Loading TP lbs/yr	Loading TSS lbs/yr	Loading Volume ac-ft/yr	Reductions TP lbs/yr	Reductions TSS lbs/yr	Reductions Volume ac-ft/yr	% Reduction TP lbs/yr	% Reduction TSS lbs/yr	% Reduction Volume ac-ft/yr
Initial Conditions	0.0	144.2	113503	299.84	N/A	N/A	N/A	N/A	N/A	N/A
Pool to 976 ft	0.7	143.5	112789	299.84	0.70	714	0.0	0.5%	0.6%	0.0%
Pool to 977 ft	2.7	140.1	107078	299.84	4.07	6425	0.0	2.8%	5.7%	0.0%
Pool to 978 ft	7.1	134.1	93515	298.91	10.09	19988	0.93	7.0%	17.7%	0.31%
Pool to 979 ft	13.9	127.9	77096	297.04	16.30	36407	2.80	11.3%	32.1%	0.93%
Pool to 980 ft	35.9	112.1	60678	292.15	32.13	52825	7.69	22.3%	46.5%	2.56%

Site Summary –WR105– 980 Pool elev.	
Water Body	Lake Independence
Treatment Watershed (ac)	400
Dominant Land Cover	Agriculture
Installation Type	Box Weir
Installation Cost ($)	$7,500
Easement Cost ($)	$509,500
Promo/Design/Admin ($)	$16,205
Maintenance ($/20yrs)	$10,000
Total 20 Year Cost ($)	$543,205
Project Life (yrs)	20
$/lb-TP removal/yr	$845
$/lb-TSS removal/yr	$.51
$/ac-ft volume removal/yr	$3,532



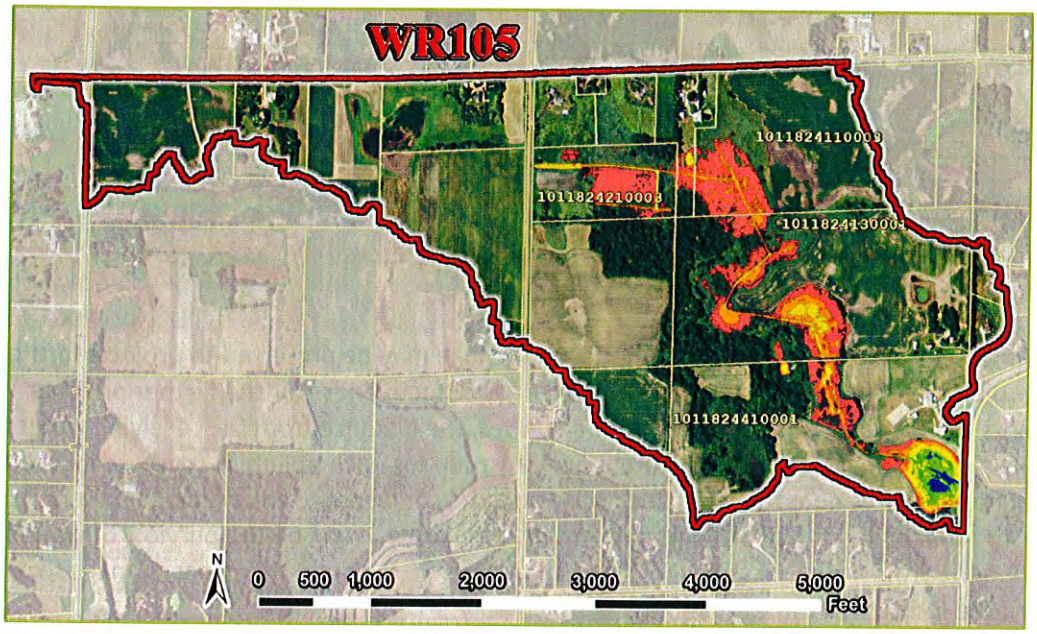


EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

City	Independence
Contact Name	Joe Baker
Telephone	612-868-8702
Email	Joe_baker@cargill.com
Address	
Project Name	Seasonal Pond 77

	1. Is project in Member's CIP? ( ) yes (x) no	Proposed CIP Year = 2019
	2. Has a feasibility study or an engineering report (circle one) been done for this project? (x) yes ( ) no subwatershed assessment	

		Amount
	Total Estimated Project Cost	$10,420
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$2,650
	Other Funding Sources (name them) City, Henn Cty grant	$7,815
		$

	3. What is the scope of the project? Install control structure to allow land owner full control of water levels. Allows water to pond from after harvest in the fall to before planting in the spring.
	4. What is the purpose of the project? Can result in longer growing season, will reduce nutrient-laden runoff from site. What water resource(s) will be impacted by the project? Lake Independence.
	5. What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.) 17.56 acres, ~~$365.61/lb.~~2.85 lbs/yr TP removal, ~~$0.52/lb~~2,000 lbs/yr TSS removal, ~~$484.65/~~ 2.15 ac-ft/year volume removal..
	6. How does the project contribute to achieving the goals and programs of the Commission? Ground water recharge, volume control, TP and TSS reductions. ~~Helps reverse the results of the winter freeze/spring thaw scenario. Surface soils can be thawed while frost persists in the subsoil, preventing infiltration and increasing amount of runoff over saturated and highly erodible surface soil. Winter applications of manure from livestock operations greatly increase nutrient concentration in snowmelt and spring rains. Fish spawning is disrupted by highly turbid and nutrient rich spring runoff~~.
0/10	7. Does the project result from a regulatory mandate? ( ) yes (x) no How?
0/10/20	8. Does the project address one or more TMDL requirements? (x) yes ( ) no Which? Ground water recharge, volume control, TP and TSS reductions. ~~Nutrient load reduction.~~
0/10/20	9. Does the project have an educational component? (x) yes ( ) no Describe. Can provide agriculturalist with a low-cost, responsible way to reduce nutrient loading to Lake Independence.
0/10	10. Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project? ( ) yes ( ) no Identify the LGUs.
10/20	11. Is the project in all the LGUs' CIPs? ( ) yes ( ) no

1-34	*(For TAC use)* 12. Does project improve water quality? (0-10) 13. Prevent or correct erosion? (0-10) 14. Prevent flooding? (0-5)	15. Promote groundwater recharge? (0-3) 16. Protect and enhance fish and wildlife habitat? (0-3) 17. Improve or create water recreation facilities? (0-3)
TOTAL (poss 114)		

Seasonal Ponding

During snow melt, early spring rains, and late fall rains, significant runoff and localized erosion can occur. These are particularly sensitive times of year for several reasons. Surface soils can be thawed while frost persists in the subsoil. This prevents infiltration, thereby increasing the amount of runoff over the saturated and highly erodible surface soil. In agricultural areas, these times of year are before and after harvest, when crop and residue covers are at their lowest. Winter application of manure from livestock operations may also greatly increase the nutrient concentration in snowmelt and early spring rains. Finally, disruption to fish spawning from highly turbid and nutrient rich spring runoff can compound the negative environmental impacts. For these reasons, it can be highly beneficial to find opportunities for seasonal ponding on agricultural lands.

Seasonal ponding involves temporarily holding back water in areas of the landscape that are otherwise well-drained with drain tile or other artificial means prior to planting and after crop harvest. Not only can this process improve water quality by allowing sediment and organics to settle out in ponded water, but it can help agricultural producers by improving soil nutrients in the ponded area, helping frost go out sooner where pond water is held, and allowing water to be held on the landscape in dry periods to benefit stressed crops. Where deep ponding can be achieved over winter, it may be possible to prevent frost entirely, thereby allowing earlier planting and a longer growing season. A well-managed seasonal ponding project can benefit the agricultural producer and downstream water quality.

Figure 24: Seasonal Ponding Site
The green area (upper right) has a tile riser which outlets near a culvert (lower right). The aerial photo (lower left) shows potential ponding elevation in different colors.

Planting date	Grain yield loss (%)
April 25	0
April 30	0
May 5	1
May 10	2
May 15	5
May 20	8
May 25	13
May 30	18
June 4	24
June 9	31
June 14	39

Figure 25: Corn Planting Date vs. Yield Loss
Data are from planting date trials at Lamberton, MN from 1988-2003 by Bruce Potter and Steve Quiring.

Seasonal ponding is achieved by installing a control structure that allows the land operator full control of water levels. Allowing water to pond from after harvest (Oct-November) until before planting (mid to late April) can achieve significant water quality benefits without yield losses (Figure 25). The precise time of water management can be left to the full discretion of the land operator. While longer ponding is preferred, the relatively inexpensive practice proves to be a cost-effective approach even during short duration ponding.

The figure to the right illustrates how a drainage tile could be interrupted with a control structure to manage water levels. By simply removing all or some of the restrictors, water levels could be rapidly dropped.

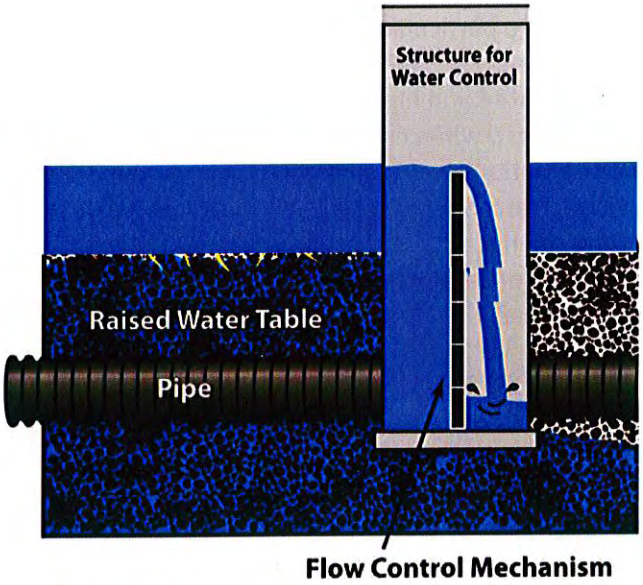


Figure 26: Water Control Attached to Drain Tile (illustration courtesy of Illinois NRCS – modified)

Seasonal pond retrofits were modeled utilizing the ArcView extension of the Soil & Water Assessment Tool (ArcSWAT). This model combines inputs of hydrography, topography, soils, and land cover in a GIS interface and determines runoff volume and pollutant loading based on these inputs. The model was run with and without the identified project and reported in monthly intervals. The difference in pollutant discharge for the months when ponding is anticipated to occur (October – April) were noted. The selected site was modeled at multiple ponding depths. A detailed account of the methodologies used is included in Appendix A.

The seasonal pond is located within close proximity to Lake Sarah and so the reported benefits should be close to those actually experienced by the lake. Ultimately, it will be the purview of watershed management professionals to select projects to pursue. To facilitate this process, maps for each project showing the location in the watershed are provided.

In order to determine cost-benefit, the cost of each project had to be estimated. Seasonal ponding projects were assumed to involve installation of a control structure to retrofit existing drainage features. Additionally, project design, promotion, administration, construction oversight and long term maintenance had to be considered in order to capture the true cost of the effort.

The table below summarizes the seasonal pond project costs and benefits. Cost assumptions made to calculate the cost-benefit should be verified against local experience while creating implementation plans.

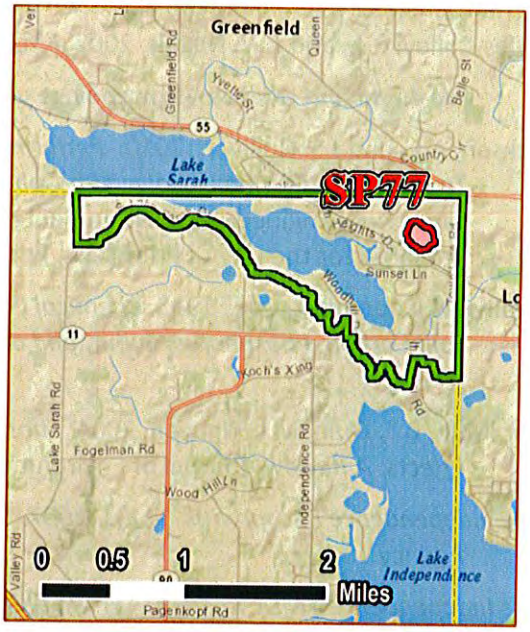
Table 30: Potential Seasonal Ponding Project

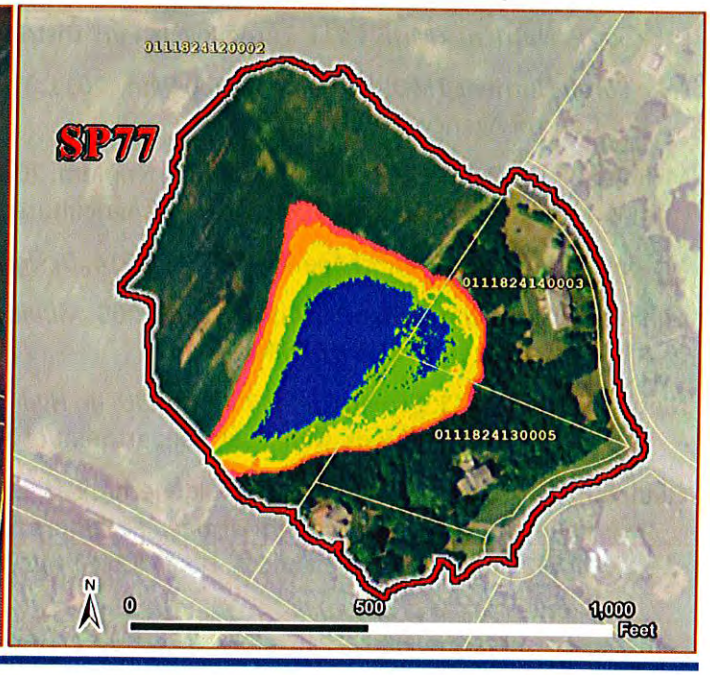
Water Resource	Site ID	Pool Elev.	TSS Reduction (tons/yr)	TP Reduction (lbs/yr)	Volume Reduction (ac-ft/yr)	10 Yr Cost[27]	Project Life (yrs)	Cost-Benefit ($/lb TP)
Sarah	SP77	997	1.0	2.85	2.15	$10,420	10	$365.61

[27] Total cost over ten years was calculated assuming project design and construction oversight were $3,000, landowner outreach, and general project coordination would take 40 hours total at $73/hr, annual inspection and maintenance costs $50/yr. Structure installation is $4,000 per control structures .

SP77 Ponding Elev.	Pool Area (acres)	Loading TP lbs/yr	Loading TSS lbs/yr	Loading Volume ac-ft/yr	Reductions TP lbs/yr	Reductions TSS lbs/yr	Reductions Volume ac-ft/yr	% Reduction TP lbs/yr	% Reduction TSS lbs/yr	% Reduction Volume ac-ft/yr
Initial Conditions	0.0	5.36	4167	14.23	N/A	N/A	N/A	N/A	N/A	N/A
Pool to 993 ft	1.5	4.34	4057	13.63	1.02	110	0.60	19.0%	2.6%	4.2%
Pool to 994 ft	2.7	3.26	3352	12.86	2.10	815	1.37	39.2%	19.6%	9.6%
Pool to 995 ft	3.6	2.84	2632	12.51	2.52	1535	1.72	47.0%	36.8%	12.1%
Pool to 996 ft	4.2	2.57	2287	12.22	2.79	1880	2.01	52.1%	45.1%	14.1%
Pool to 997 ft	4.6	2.51	2162	12.08	2.85	2005	2.15	53.2%	48.1%	15.1%

Site Summary – SP77 – 997 elev.	
Water Body	Lake Independence
Treatment Watershed (ac)	17.56
Dominant Land Cover	Agriculture
Installation Type	Seasonal Pond
Installation Cost ($)	$4,000
Promo/Design/Admin ($)	$5,920
Maintenance ($/10yrs)	$500
Total 10 Year Cost ($)	$10,420
Project Life (yrs)	10
$/lb-TP removal/yr	$365.61
$/lb-TSS removal/yr	$0.52
$/ac-ft volume removal/yr	$484.65





2017 ME_IN-1

EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

City	Medina and Independence
Contact Name	Rich Brasch-Three Rivers Park District
Telephone	763-694-2061
Email	Richard.Brasch@threeriversparks.org
Address	12615 County Road 9, Plymouth, MN 55441
Project Name	Baker Park Reserve Campground Ravine Stabilization

	1. Is project in Member's CIP? (X) yes ( ) no	Proposed CIP Year = 2018
	2. Has a feasibility study or an engineering report (circle one) been done for this project? (X) yes ( ) no	

		Amount
	Total Estimated Project Cost	$520,000
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$10,500
	Other Funding Sources (name them): BWSR Clean Water Funds Grant	$416,000 (max)
	Hennepin County Opportunity Grant	$62,000
	Local Cost-share (TRPD, cities of Medina, Independence)	$31,500

	3. *What is the scope of the project?* The project would implement the most cost-effective improvements from the recently completed "Baker Park Reserve Campground Ravine and Subwatershed Assessment", undertaken as a joint effort by Three Rivers Park District (TRPD), the Pioneer-Sarah Creek Watershed Management Commission (PSCWMC), and the cities of Medina and Independence, and completed in December 2016. Those improvements involve stabilizing the main and two tributary channels of the ravine using a series of rock grade control structures/check dams and lining the channels with a combination of rounded field stone and angular rip-rap up to the expected 10-year flood elevation.
	4. *What is the purpose of the project? What water resource(s) will be impacted by the project?* The purpose of the project is to stabilize about 2,200 feet of eroding ravines, and thereby reduce the amount of sediment and phosphorus exported to Lake Independence. Flow and pollutant loads from the ravine are discharged directly to Lake Independence near the western boundary of TRPD's Baker Park Reserve
	5. *What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.*) Estimates completed as part of the assessment show that implementation of the proposed improvements would achieve an average annual total phosphorus load reduction to Lake Independence of 112 lbs./yr from the main ravine and an additional 22 lbs./yr. from the 2 tributary ravines (total load reduction of 134 lbs. TP per year). The ravine watershed is about 80 acres, 29 acres of which lie within the City of Independence and 51 acres within the City of Medina, Of the Medina portion of the watershed, approximately 31 acres lie within Baker park Reserve (mostly the campground).
	6. *How does the project contribute to achieving the goals and programs of the Commission?* This project would be a major step forward in implementation of the TMDL for Lake Independence, arguably among the Commission's highest priority water resources.
0/10	7. *Does the project result from a regulatory mandate?* (X) yes ( ) no *How?* The primary regulatory mandate driving the proposed project is the Lake Independence TMDL, approved by both MPCA and USEPA in 2007. The TMDL calls for a watershed phosphorus load reduction of 872 lbs./yr. Less than 150 lbs/yr. of that reduction target has been achieved in the 10 years since the TMDL was completed in 2007. Implementation of this project could almost double that figure.
0/10/20	8. *Does the project address one or more TMDL requirements?* (X) yes ( ) no *Which?* The proposed project would be a significant step toward compliance with the watershed phosphorus load reduction targets called for in the Lake Independence nutrient TMDL. By itself, the TP load reduction estimated for this project would accomplish about 15% of the total watershed TP load reduction called for in the TMDL.
0/10/20	9. *Does the project have an educational component?* (X) yes ( ) no *Describe:* At a minimum, the project will include web postings about the project (emphasizing the benefits to Lake Independence and the partnership that made the project happen) on the web sites of the TRPD, the PSCWMC, the two participating cities, and perhaps the LICA web site.

0/10	10. *Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project*? (X) yes ( ) no *Identify the LGUs*: The cities of Medina and Independence and Three Rivers Park District.	
10/20	11. *Is the project in all the LGUs' CIPs?* ( ) yes (X) no Not yet; the local match for this project is already in TRPD's CIP and is expected to be in the CIP for the cities of Medina and Independence for 2018.	
1-34	(*For TAC use)* 12. Does project improve water quality? (0-10) 13. Prevent or correct erosion? (0-10) 14. Prevent flooding? (0-5)	15. Promote groundwater recharge? (0-3) 16. Protect and enhance fish and wildlife habitat? (0-3) 17. Improve or create water recreation facilities? (0-3)
TOTAL (poss 114)		

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2017 ME-1

EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

City	Medina
Contact Name	Scott Johnson
Telephone	(763) 473-4643
Email	Scott.johnson@ci.medina.mn.us
Address	2052 County Road 24, Medina, MN 55340
Project Name	GS1 – Fern St. Gully Stabilization

	1. Is project in Member's CIP? (X) yes ( ) no	Proposed CIP Year = 2017
	2. Has a feasibility study or an engineering report (circle one) been done for this project? (X) yes ( ) no	

		Amount
	Total Estimated Project Cost	$18,850
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$4,712.50
	Other Funding Sources (grants and City of Medina)	$14,137.50

	3. What is the scope of the project? Stabilize a gully flowing into a wetland connected to Lake Independence in the Independence Beach neighborhood in Medina. The gully stabilization will address a 600 sq. ft. erosion area and remove 3.4 lbs. /yr. of phosphorus.
	4. What is the purpose of the project? What water resource(s) will be impacted by the project? The purpose of the project is to remove phosphorus from the Ardmore Area Subwatershed to improve water quality in Lake Independence.
	5. What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.) The gully stabilization will address a 600 sq. ft. erosion area and remove 3.4 lbs. /yr. of phosphorus.
	6. How does the project contribute to achieving the goals and programs of the Commission? The project will address the TMDL goal for the subwatershed by removing 3.4 lbs. /yr. of phosphorus.
0/10	7. Does the project result from a regulatory mandate? (X) yes ( ) no How? The project removes 3.4 lbs./yr. of phosphorus from the TMDL
0/10/20	8. Does the project address one or more TMDL requirements? (X) yes ( ) no Which? Phosphorus reduction
0/10/20	9. Does the project have an educational component? ( ) yes (X) no Describe.
0/10	10. Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project? (X) yes ( ) no Identify the LGUs.
10/20	11. Is the project in all the LGUs' CIPs? (X) yes ( ) no

1-34	(*For TAC use)*	
	12. Does project improve water quality? (0-10)	15. Promote groundwater recharge? (0-3)
	13. Prevent or correct erosion? (0-10)	16. Protect and enhance fish and wildlife habitat? (0-3)
	14. Prevent flooding? (0-5)	17. Improve or create water recreation facilities? (0-3)

TOTAL (poss 114)	

Gully Stabilization

Gullies are created by concentrated stormwater cutting into the landscape and eroding away the soil. This occurs when the erosive force of the water flow is greater than the cohesive force of the soil. Over time the gulley cuts deeper into the soil, creating unstable side slopes. The near vertical side slopes of the gully then slough in and are transported downstream into the receiving water. Since particulate phosphorous is attached to the sediment, this directly contributes to the phosphorous loading into the receiving water. If not repaired, gullies continue to cut and become larger and contribute to the phosphorous load.

Gullies can be stabilized by using rip rap, boulders, natural vegetation, and manufactured synthetic products. Stabilization of a gully is a similar process to stabilizing a stream. Riprap can often be positioned at strategic locations to dissipate the flow and reduce scouring. Vegetation and synthetic products can also be used to create greater cohesion and resistance to scouring, as well as slowing down the velocity of water flow.

Figure 10U: Stabilization using manufactured synthetic products; Source: Contech Engineered Solutions

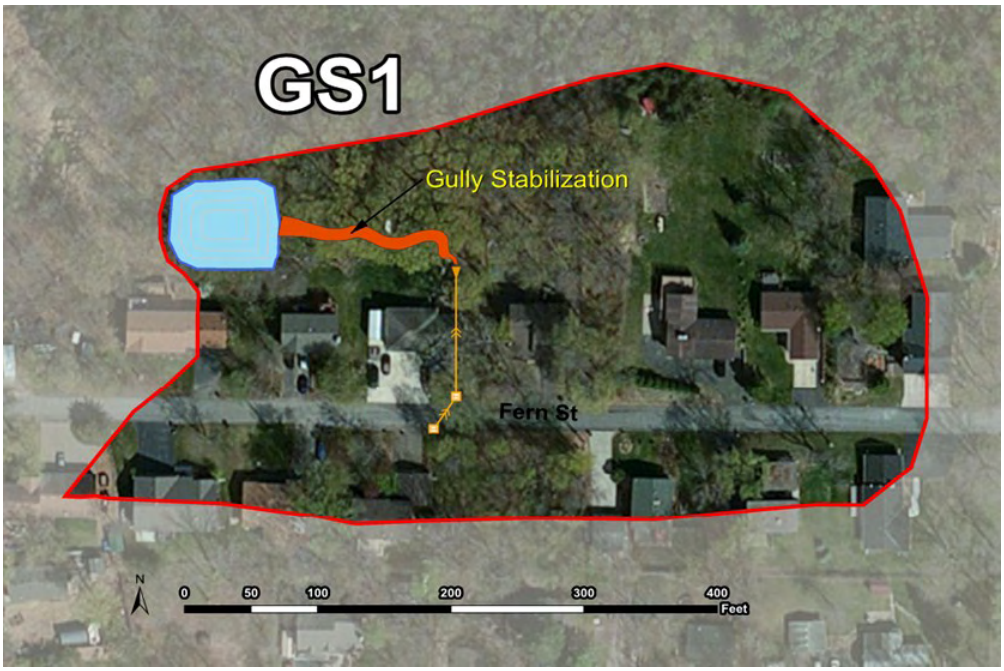
GS1

The gully north of Fern Street receives concentrated flow via a storm sewer pipe. Field measurements showed that the gully is approximately 120 feet long. The largest width measurement was recorded as five-feet, and the largest depth measurement was recorded as four-feet. In total, it is estimated that 1,390 cubic feet or 50 tons of sediment has been eroded to date. The BWSR Pollution Reduction Estimator worksheet was utilized to estimate the phosphorous load that the gully is producing. Stabilizing the gully could reduce the TP load by 100%.

Table 7U. Site Summary – GS1	
Model Used	BWSR worksheet
Erosion Length	120 ft
Erosion Area	600 sq ft
Estimated TP Removal	3.4 lbs/yr
Installation Cost	$12,000
Design/Admin	$4,000
Maintenance Cost	$150
Total 20 Year Cost	$18,850
$/lb-TP removal /yr	$277

Figure 11U: Left— Erosion to the eastern side of the gully. Right - West side of the gully, eventually flowing into wetland connected to Lake Independence.

Figure 12U: Drainage area and location map



2017 ME-2

EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

City	Medina
Contact Name	Scott Johnson
Telephone	(763) 473-4643
Email	Scott.johnson@ci.medina.mn.us
Address	2052 County Road 24, Medina, MN 55340
Project Name	ISF1 – Fern St. Iron Enhanced Sand Filter

	1. Is project in Member's CIP? (X) yes ( ) no	Proposed CIP Year = 2017
	2. Has a feasibility study or an engineering report (circle one) been done for this project? (X) yes ( ) no	

		Amount
	Total Estimated Project Cost	$87,500
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$21,875
	Other Funding Sources (grants and City of Medina)	$65,625

	3. What is the scope of the project? Install an Iron Enhanced Sand Filter near Fern Street in the Independence Beach neighborhood in Medina. The filter will treat a 4.1 acre drainage area and remove 3.1 lbs. /yr. of phosphorus.
	4. What is the purpose of the project? What water resource(s) will be impacted by the project? The purpose of the project is to remove phosphorus from the Ardmore Area Subwatershed to improve water quality in Lake Independence.
	5. What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.) The filter will treat a 4.1 acre drainage area and remove 3.1 lbs. /yr. of phosphorus.
	6. How does the project contribute to achieving the goals and programs of the Commission? The project will address the TMDL goal for the subwatershed by removing 3.1 lbs. /yr. of phosphorus.
0/10	7. Does the project result from a regulatory mandate? (X) yes ( ) no How? The project removes 3.1 lbs./yr. of phosphorus from the TMDL
0/10/20	8. Does the project address one or more TMDL requirements? (X) yes ( ) no Which? Phosphorus reduction
0/10/20	9. Does the project have an educational component? ( ) yes (X) no Describe.
0/10	10. Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project? (X) yes ( ) no Identify the LGUs.
10/20	11. Is the project in all the LGUs' CIPs? (X) yes ( ) no

1-34	(*For TAC use)*	
	12. Does project improve water quality? (0-10)	15. Promote groundwater recharge? (0-3)
	13. Prevent or correct erosion? (0-10)	16. Protect and enhance fish and wildlife habitat? (0-3)
	14. Prevent flooding? (0-5)	17. Improve or create water recreation facilities? (0-3)

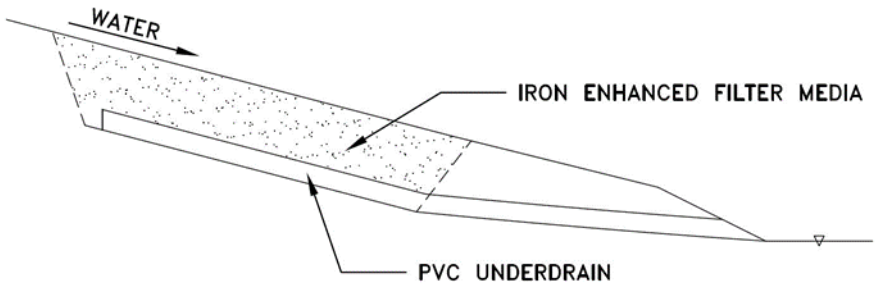
TOTAL (poss 114)	

Iron Enhanced Sand Filters (MN Filter)

Similar to enhanced filtering devices, iron enhanced sand filters are efficient in reducing the dissolved portion of the phosphorous. Iron enhanced filters utilize iron filings within the filter media. As the stormwater passes through the media, the dissolved phosphorous attaches to the iron filings within the media, effectively treating the stormwater. A pre-treatment settling basin is utilized upstream of the iron enhanced filter to settle out the sediment. Any sediment that passes through the pre-treatment will still have an opportunity to settle out in the iron enhanced filter; however, over time, sediment may plug the iron enhanced filter and reduce overall effectiveness.

In order for iron enhanced sand filters to be effective, they must be designed to drain after a storm event in order to prevent hypoxic conditions.

Figure 31U: Schematic of iron enhanced sand filter



There is one iron enhanced sand filter (ISF1) proposed in this watershed, which is in the same location as PD2. Only one BMP should be considered at this site; therefore, if an iron enhanced sand filter is utilized, pond PD2 would not be constructed.

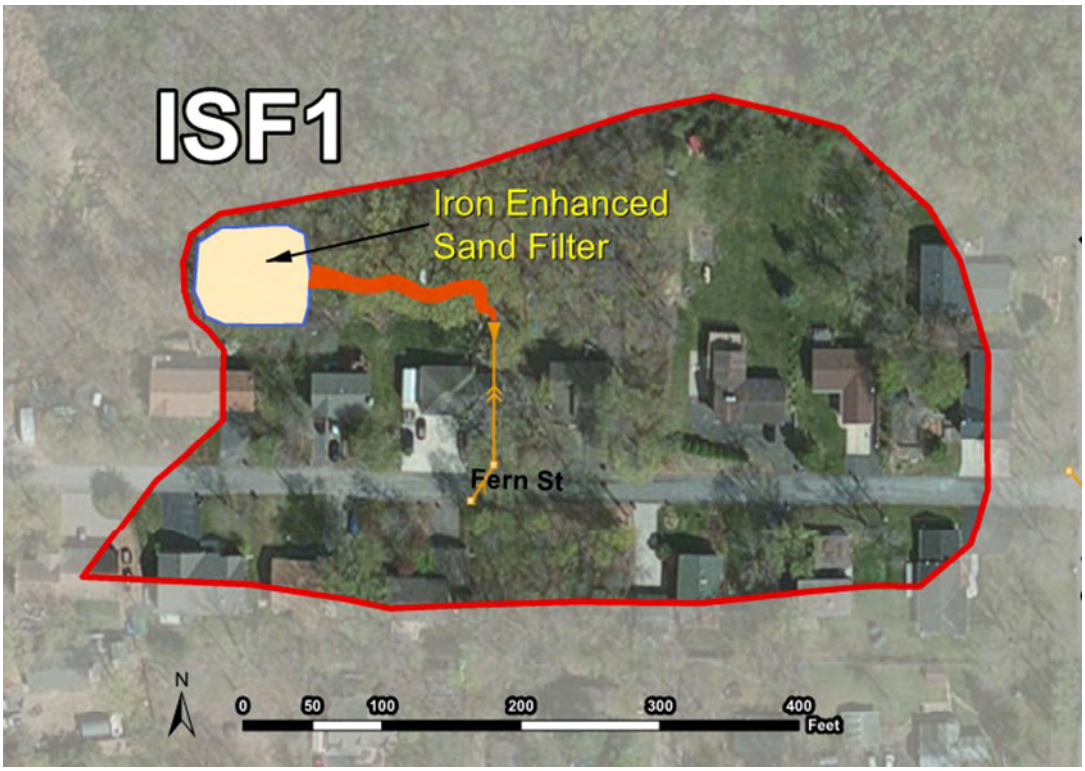
Figure 32U: Iron enhanced sand filter; Source: BWSR

ISF1

Table 15U. Site Summary –ISF1	
Model Used	N/A
Drainage Area	4.1 ac
Proposed Pond Area	5,400 sq ft
Estimated TP removal	3.1 lbs/yr
Installation Cost	$58,000
Design/Admin	$15,000
Maintenance Cost / yr	$500
Total 30 Year Cost	$87,500
$/lb-TP removal /yr	$941

Figure 33U: Location of the proposed ISF1

Figure 34U: Drainage area and location map



2017 ME-3

EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

City	Medina
Contact Name	Scott Johnson
Telephone	(763) 473-4643
Email	Scott.johnson@ci.medina.mn.us
Address	2052 County Road 24, Medina, MN 55340
Project Name	PD3 – Aspen Avenue Pond Enlargement/Excavation

	1. Is project in Member's CIP? (X) yes ( ) no	Proposed CIP Year = 2017
	2. Has a feasibility study or an engineering report (circle one) been done for this project? (X) yes ( ) no	

		Amount
	Total Estimated Project Cost	$51,550
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$12,887.50
	Other Funding Sources (grants and City of Medina)	$38,662.50

	3. What is the scope of the project? Enlarge and excavate an existing storm water pond on Aspen Avenue in the Independence Beach neighborhood in Medina. The pond will treat an 8 acre drainage area and remove 1.1 lbs. /yr. of phosphorus.
	4. What is the purpose of the project? What water resource(s) will be impacted by the project? The purpose of the project is to remove phosphorus from the Ardmore Area Subwatershed to improve water quality in Lake Ardmore.
	5. What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.) The pond will treat an 8 acre drainage area and remove 1.1 lbs. /yr. of phosphorus.
	6. How does the project contribute to achieving the goals and programs of the Commission? The project will address the TMDL goal for the subwatershed by removing 1.1 lbs. /yr. of phosphorus.
0/10	7. Does the project result from a regulatory mandate? (X) yes ( ) no How? The project removes 1.1 lbs./yr. of phosphorus from the TMDL
0/10/20	8. Does the project address one or more TMDL requirements? (X) yes ( ) no Which? Phosphorus reduction
0/10/20	9. Does the project have an educational component? ( ) yes (X) no Describe.
0/10	10. Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project? (X) yes ( ) no Identify the LGUs.
10/20	11. Is the project in all the LGUs' CIPs? (X) yes ( ) no

1-34	(*For TAC use)*	
	12. Does project improve water quality? (0-10)	15. Promote groundwater recharge? (0-3)
	13. Prevent or correct erosion? (0-10)	16. Protect and enhance fish and wildlife habitat? (0-3)
	14. Prevent flooding? (0-5)	17. Improve or create water recreation facilities? (0-3)

TOTAL (poss 114)	

PD3

Table 11U. Site Summary – PD3	
Model Used	MIDS
Drainage Area	8.0 ac
Existing Pond Area	8,700 sq ft
Proposed Pond Area	14,000 sq ft
Estimated TP removal	1.1 lbs/yr
Installation Cost	$31,800
Design/Admin	$12,500
Maintenance Cost/yr	$250
Total 30 Year Cost	$51,550
$/lb-TP removal /yr	$1,562

Figure 22U: Purple outline shows proposed enlarged pond for PD3. Above– view looking south. Below– view looking west.

Figure 23U: Drainage area and location map

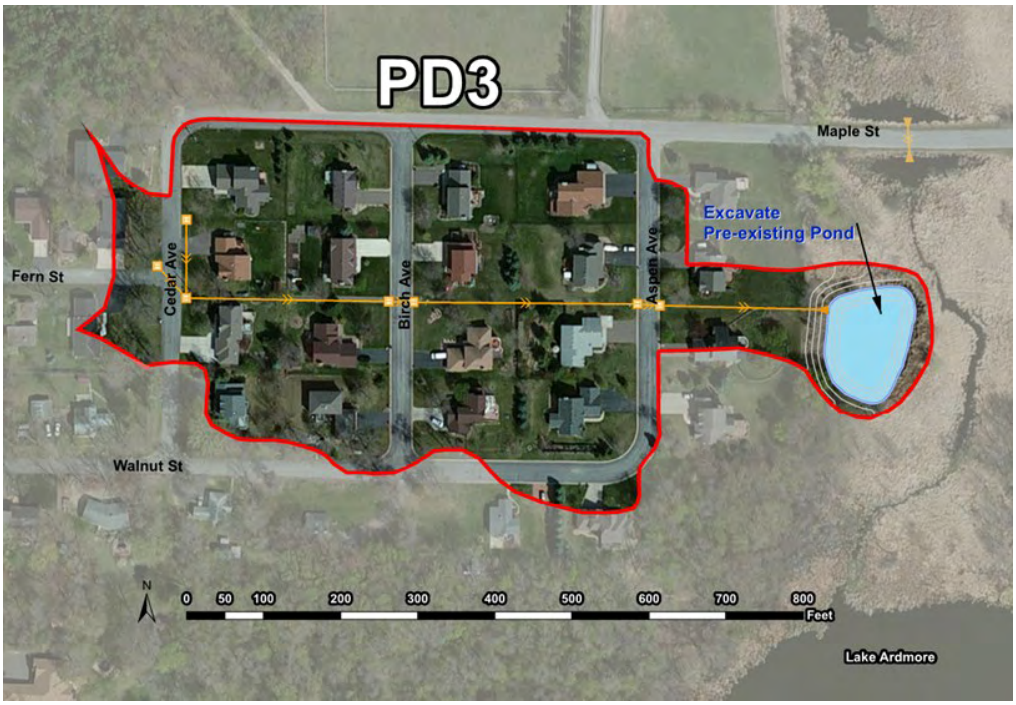


EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

City	Medina
Contact Name	Scott Johnson
Telephone	(763) 473-4643
Email	Scott.johnson@ci.medina.mn.us
Address	2052 County Road 24, Medina, MN 55340
Project Name	SR1 – Medina Boat Launch Shoreline Restoration

	1. Is project in Member's CIP? (X) yes ( ) no	Proposed CIP Year = 2017
	2. Has a feasibility study or an engineering report (circle one) been done for this project? (X) yes ( ) no	

		Amount
	Total Estimated Project Cost	$22,000
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$5,500
	Other Funding Sources (grants and City of Medina)	$16,500

	3. What is the scope of the project? 160 ft. shoreline restoration project at the City of Medina Boat Launch in the Independence Beach neighborhood in Medina. The shoreline restoration will remove 2.0 lbs. /yr. of phosphorus.
	4. What is the purpose of the project? What water resource(s) will be impacted by the project? The purpose of the project is to remove phosphorus from the Ardmore Area Subwatershed to improve water quality in Lake Independence.
	5. What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.) The shoreline restoration will remove 2.0 lbs. /yr. of phosphorus.
	6. How does the project contribute to achieving the goals and programs of the Commission? The project will address the TMDL goal for the subwatershed by removing 2.0 lbs. /yr. of phosphorus.
0/10	7. Does the project result from a regulatory mandate? (X) yes ( ) no How? The project removes 2.0 lbs./yr. of phosphorus from the TMDL
0/10/20	8. Does the project address one or more TMDL requirements? (X) yes ( ) no Which? Phosphorus reduction
0/10/20	9. Does the project have an educational component? ( ) yes (X) no Describe.
0/10	10. Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project? (X) yes ( ) no Identify the LGUs.
10/20	11. Is the project in all the LGUs' CIPs? (X) yes ( ) no

1-34	(*For TAC use)*	
	12. Does project improve water quality? (0-10)	15. Promote groundwater recharge? (0-3)
	13. Prevent or correct erosion? (0-10)	16. Protect and enhance fish and wildlife habitat? (0-3)
	14. Prevent flooding? (0-5)	17. Improve or create water recreation facilities? (0-3)

TOTAL (poss 114)	

Shoreline Restoration

Shoreline erosion is also a source of phosphorus. All of the sediment created by shoreline erosion is directly deposited into the lake with no chance for treatment. Visual observations revealed that shoreline erosion is occurring near Lakeshore Park on either side of the boat ramp. The erosion is approximately 160 ft. long and is estimated to contribute 2 lbs/yr of phosphorus to Lake Independence. This phosphorus load could be greatly reduced by stopping the erosion and restoring the shoreline.

Shoreline restoration is not much different than gully and stream stabilization. Shoreline restoration may include the use of rip rap boulders near the water surface to armor the shore against the wave action. Vegetation can be re-established above the hard armor, which will penetrate deep into the underlying soil to prevent erosion and reduce the velocity of the stormwater that flows down the bank.

Figure 13U: Photo of shoreline stabilization; Source: MN DNR

SR1

Table 8U. Site Summary - SR1	
Model Used	BWSR worksheet
Eroding Shoreline	160 ft
Estimated TP Removal	2.0 lbs/yr
Installation Cost	$16,000
Design/Admin	$1,500
Maintenance Cost / yr	$240
Total 20 Year Cost	$22,000
$/lb-TP removal /yr	$550

Figure 14U: Close up of the shoreline erosion

Figure 15U: The erosion exists on both sides of the boat launch. It extends approximately 120 ft. to the right of the launch and 40 ft. to the left.

Figure 16U: Drainage area and location map

2017 ME-5

EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

City	Medina
Contact Name	Scott Johnson
Telephone	(763) 473-4643
Email	Scott.johnson@ci.medina.mn.us
Address	2052 County Road 24, Medina, MN 55340
Project Name	SS1 - Stream Stabilization on creek between Lake Ardmore and Lake Independence

	1. Is project in Member's CIP? (X) yes ( ) no	Proposed CIP Year = 2017
	2. Has a feasibility study or an engineering report (circle one) been done for this project? (X) yes ( ) no	

		Amount
	Total Estimated Project Cost	$13,200
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$3,300
	Other Funding Sources (grants and City of Medina)	$9,900

	3. What is the scope of the project? Stabilize the creek between Lake Ardmore and Lake Independence in the Independence Beach neighborhood in Medina. The stream stabilization will address a 110 sq. ft. erosion area and remove .2 lbs. /yr. of phosphorus.
	4. What is the purpose of the project? What water resource(s) will be impacted by the project? The purpose of the project is to remove phosphorus from the Ardmore Area Subwatershed to improve water quality in Lake Independence.
	5. What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.) The stream stabilization will address a 110 sq. ft. erosion area and remove .2 lbs. /yr. of phosphorus.
	6. How does the project contribute to achieving the goals and programs of the Commission? The project will address the TMDL goal for the subwatershed by removing .2 lbs. /yr. of phosphorus.
0/10	7. Does the project result from a regulatory mandate? (X) yes ( ) no How? The project removes .2 lbs./yr. of phosphorus from the TMDL
0/10/20	8. Does the project address one or more TMDL requirements? (X) yes ( ) no Which? Phosphorus reduction
0/10/20	9. Does the project have an educational component? ( ) yes (X) no Describe.
0/10	10. Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project? (X) yes ( ) no Identify the LGUs.
10/20	11. Is the project in all the LGUs' CIPs? (X) yes ( ) no

1-34	(*For TAC use)*	
	12. Does project improve water quality? (0-10)	15. Promote groundwater recharge? (0-3)
	13. Prevent or correct erosion? (0-10)	16. Protect and enhance fish and wildlife habitat? (0-3)
	14. Prevent flooding? (0-5)	17. Improve or create water recreation facilities? (0-3)

TOTAL (poss 114)	

SS1

Table 6U. Site Summary – SS1	
Model Used	BWSR Calculator
Erosion Length	70 ft
Erosion Area	110 sq ft
Estimated TP Removal	0.2 lbs/yr
Installation Cost	$8,250
Design/Admin	$4,000
Maintenance Cost / yr	$50
Total 20 Year Cost	$13,200
$/lb-TP removal /yr	$3,300

Figure 8U: Erosion seen looking southeast

Figure 9U: Drainage area and location map

2017 MI-1

EXHIBIT A

Pioneer-Sarah Creek Watershed Management Commission

Capital Improvement Project Submittal (2-23-2017 DRAFT)

(This submittal will be rated on its completeness and adherence to the goals of the Commission. A second page may be used to provide complete responses.)

City	Minnestrista
Contact Name	Rich Brasch-Three Rivers Park District
Telephone	763-694-2061
Email	Richard.Brasch@threeriversparks.org
Address	12615 County Road 9, Plymouth, MN 55441
Project Name	South Whaletail Lake Alum Treatment

	1. Is project in Member's CIP? ( ) yes (X) no	Proposed CIP Year 2020
	2. Has a feasibility study or an engineering report (circle one) been done for this project? ( ) yes (X) no	

		Amount
	Total Estimated Project Cost	$200,000
	Estimated Commission Share (up to 25%, not to exceed $250,000)	$5,000
	Other Funding Sources (name them): BWSR Clean Water Funds Grant	$160,000 (max)
	Hennepin County Opportunity Grant	$20,000
	Local Cost-share (TRPD, City of Minnetrista)	$15,000

	3. *What is the scope of the project?* This project will involve treatment of South Whaletail Lake with alum to reduce internal loading of phosphorus that negatively affects the lake's surface water quality. The application of alum would likely occur in two phases separated by 1-2 years to maximize the effectiveness of the treatment.
	4. *What is the purpose of the project? What water resource(s) will be impacted by the project?* The purpose of the project is to reduce the internal load to the degree necessary to meet the state in-lake water quality standard for at last a 20-year period. South Whaletail Lake will be directly impacted by the treatment, but there will be a small positive effect on North Whaletail Lake as well because it will receive a higher quality discharge from South Whaletail Lake than it does under current conditions.
	5. *What is the anticipated improvement that would result from the project? (Include size of area treated and projected nutrient reduction.*) The nearly completed Pioneer Sarah Creek Watershed Total Maximum Daily Load (TMDL) Study and Watershed Restoration and Protection Plan (WRAPs) report identifies release of phosphorus from enriched bottom sediments as the source of about 80% of the phosphorus load negatively affecting surface water quality in South Whaletail Lake. The goal of treating the lake with alum is to reduce the phosphorus load affecting the lake by at least 180.2 lbs./yr., which will meet the load reduction requirements identified in the TMDL and allow the lake to meet state water quality standards for phosphorus. It is anticipated that about 90 acres of the 156-acre lake will need to be treated with alum to achieve this reduction.
	6. *How does the project contribute to achieving the goals and programs of the Commission?* This project would be a major step forward in implementation of the TMDL for South Whaletail Lake, one of the Commission's high priority water resources. Preliminary estimates are that the cost-effectiveness of the treatment in reducing phosphorus loading affecting surface water quality in the lake is about $80/lb. TP load reduction over a 20 year period.
0/10	7. *Does the project result from a regulatory mandate?* (X) yes ( ) no *How?* The primary regulatory mandate driving the proposed project is the Pioneer Sarah Creek Watershed TMDL and WRAPS project. Because South Whaletail Lake is listed as an impaired water, the TMDL calls for a load reduction of 180.2 lbs./yr of TP to meet the TMDL requirements and improve water quality in the lake enough to consistently meet the state water quality standard applicable to the lake.
0/10/20	8. *Does the project address one or more TMDL requirements?* (X) yes ( ) no *Which?* The proposed project would decrease the phosphorus load affecting the lake enough to fully meet the reduction called for in the TMDL. It is anticipated that proper execution of the alum treatment would result in water quality that is good enough over the long term to support removal of the lake from the impaired waters list. .

0/10/20	9. *Does the project have an educational component?* (X) yes ( ) no *Describe:* At a minimum, the project will include web postings about the project (emphasizing the benefits to South Whaletail Lake and the partnership that made the project happen) on the web sites of the City of Minnetrista, TRPD, and the PSCWMC.	
0/10	10. *Do all the LGUs responsible for sharing in the cost of the project agree to go forward with this project*? (X) yes ( ) no *Identify the LGUs*: The City of Minnetrista and Three Rivers Park District.	
10/20	11. *Is the project in all the LGUs' CIPs?* ( ) yes (X) no Not yet; the local match for this project is already in TRPD's CIP and is expected to be in the CIP for the City of Minnetrista by 2020.	
1-34	(*For TAC use)* 12. Does project improve water quality? (0-10) 13. Prevent or correct erosion? (0-10) 14. Prevent flooding? (0-5)	15. Promote groundwater recharge? (0-3) 16. Protect and enhance fish and wildlife habitat? (0-3) 17. Improve or create water recreation facilities? (0-3)
TOTAL (poss 114)		

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Stream Stabilization

Erosion from streams releases sediment and transports it directly into the lake. Since particulate phosphorous is adhered to the soil particles, this results in direct phosphorus loading as well as a reduction of water clarity. The stream on the south side of Lake Ardmore that flows into Lake Independence is experiencing moderate erosion in the area between Ardmore Avenue and Lakeshore Avenue. The moderate erosion is occurring at a sharp natural meander point in the stream. Sharp curves encourage erosion because water on the outside of the curve has to move faster than the water on the inside of the curve to cover more distance in the same amount of time. The force of the accelerated stormwater along the stream bank is greater than the cohesive force of the soil. It is recommended that moderate stream bank erosion is corrected sooner rather than later; as left unrepaired, it will continue to erode the bank and deposit phosphorous rich sediment into the lake.

We measured the volume of the moderate erosion to be approximately 40 cubic feet. The BWSR Pollution Reduction Estimator estimated 0.2 lbs/yr of phosphorus export from this area. Repairing the stream bank erosion would cease its TP loading. Repair and stabilization of this area may be accomplished by placement of toe boulders, brush bundles, or geo-synthetic mats. Native vegetation with deep root systems also helps stabilize these areas but may be difficult to establish in this location due to the extensive tree cover.

Although the remaining portions of the channel are un-vegetated and may be susceptible to erosion, BMPs are not proposed at this time. Active erosion was not observed during field reconnaissance, and similar to the area above, stabilization by establishing a vegetated stream bottom would be extremely difficult due to the extensive tree cover. If observations at a later date determine stream bed erosion to be a concern, this segment should be re-evaluated.

CIP List - February 2017

Project	Project Name	Total Cost	omm Share	2014	2015	2016	Total Project Exp
ME-1	Lake Ardmore infiltration basin	*66,326*	*3,000*		3316.35		3316.35
IN-1	Lake Sarah curlyleaf pondweed treatment	*67,105*	*4,000*	2104.73	1011.26	8986.30	12102.29
ME-2	Lake Independence curlyleaf pondweed treatment	*122,000*	*12,200*				
	Hydrologic restoration: HR 67						
	Hydrologic restoration: HR 68						
	Hydrologic restoration: HR 29						
IN-2	Hydrologic restoration: HR 33	*200,000*	*20,000*				
GR-3	Dance Hall Creek BMPs	*200,000*	*10,000*				
GR-4	Feedlot improvements: Dance Hall Creek	*35,000*	*1,750*				
GR-9	Buffer strips: Dance Hall Creek	*35,000*	*1,750*				
GR-11	Control carp population: Lake Sarah	*10,000*	*500*				
GR-11	Control carp population: other lakes	*10,000*	*500*				
IN-3	Lake Sarah curlyleaf pondweed treatment	*32,000*	*3,200*				
IN-4	Gully restorations: GS50 (design)	*120,000*	*12,000*				
ME-4	Lake Ardmore neighborhood projects	*80,000*	*8,000*				
IN-5	Lake Sarah curlyleaf pondweed treatment	*26,000*	*2,600*				
IN-7	Raingardens in targeted areas	*75,000*	*7,500*				
IN-9	Shoreline restoration – Sarah and Independence	*125,000*	*12,500*				
GR-4	Feedlot improvements: Dance Hall Creek	*35,000*	*1,750*				
GR-9	Buffer strips: Dance Hall Creek	*35,000*	*1,750*				
MP-4	Ravine study	*3,000*	*300*				
ME-3	Lake Independence Subwatershed Assessment	*15,000*	*1,500*				
GR-1	Subw Assess-Hafften, Schendel, Schwauppauff	*20,000*	*1,000*				
CIP-7	Lindgren Lane Pond	*100,000*	*10,000*				
CIP-8	Koch's/Mill's Creek Inlet Ponds (now HR 97 and 29	*200,000*	*20,000*				
CIP-11	Manure Management Cost-Share Projects	*250,000*	*25,000*				
LO-1	Chippewa Road Drainage	*21,000*	*2,100*			21,710	21,710
LO-2	Creekview Road Drainage	*21,000*	*2,100*				
LO-3	Retention Pond mapping and cleanup	*10,000*	*1,000*				
LO-4	Ditch Cleaning at Ballpark	*10,000*	*1,000*				
LO-5	Sediment Pond Cleanout	*25,000*	*2,500*				
LO-6	Sediment Pond Cleanout	*80,000*	*8,000*				
MP-1	Drainageway Cleaning –E of Budd	*55,000*	*5,500*				
MP-2	Rock checks, Main St Ravine	*23,700*	*2,370*				
MP-3	Washout, Main St Ravine	*8,000*	*800*				
MP-5	North Ravine Cleanup	*286,000*	*28,600*				
Projects proposed for addition to CIP with 2017 Minor Plan Amendment							
ME17-1	Fern St Gully Stabilization: GS1	*18,850*	*4,713*				
ME17-2	Fern St Iron-Enhanced Filter: ISF1	*87,500*	*21,875*				
ME17-3	Aspen Ave Pond Enlargement/Excav: PD3	*51,550*	*12,888*				
ME17-4	Boat Launch Shoreline Resto: SR1	*22,000*	*5,500*				
ME17-5	Stream Stabilization btwn Ardmore/Indep: SS1	*13,200*	*3,300*				
Projects Funded through CIP fund, not on CIP. PROJECTS CAN NOT BE ADDED TO CIP AFTER-THE-FACT							
ME-1A	Lake Ardmore Subwatershed Assessment					218.25	218.25
IN-4A	Baker Park Ravine SWA	*20,638*	*5,200*			5204.65	5204.65
IN-??	Lake Independence Shoreline restoration (Bulrush planting grant)	*6,000*	*600*	600.00			600.00
IN-??	Lake Independence Outlet/Weir Construction	*5,889*		422.62			422.62
GR-3A	Dance Hall Creek SWA		*200*	200.00			200.00
	CIP Admin Expenses			814.27			814.27
TOTAL CIP FUND EXPENSES				**4,141.62**	**4,327.61**	**36,119.20**	**44,588.43**

2017 CIP Update – Notes

2014-2015 **ME-1** and **IN-1 Lake Ardmore basin and Lake Sarah CLPW treatment** are complete.

IN-2 HR67-Railroad and Ed Eagan, HR-68 Ed Eagan, HR 29-Selstad MNDOT bank site, HR-33 were removed due to infeasibility at this time or lack of owner involvement. (HR-33 involves 6 landowners-no contacts to date).

ME-2 Lake Independence CLPW treatment. Removed because the state will no longer fund this activity and CLWP is not addressed in the Lake Independence TMDL. CLPW for Independence, maintenance?

2016 **GR-3, 4, and 9 Dance Hall Creek projects.** These were combined under an ongoing effort to implement BMPs in the Dance Hall Creek subwatershed. These projects are dependent upon landowner participation and opportunity. The TAC suggested creating an Opportunity BMP fund, funded at $15,000 per year to ensure cash is available as opportunities arise.

GR-11 Carp Control Lake Sarah/other lakes. Lake Sarah was combined with other lakes and moved to 2019. A front-end study should be undertaken prior to removal efforts to determine carp biomass densities relative to ecological thresholds, recruitment rates, likely spawning locations, and movement patterns/routes. This information will be important in developing removal strategies and determining the success of efforts to control the carp population in the subject waterways. Commission may fund the population control based on the study, but will not complete the study.

Comment [BR1]: I would stay away from quoting a price range for the assessment, since it will vary widely by the size and complexity of the system. The one we did for the Ardmore/Spurzem Creek system was about $45,000.

IN-3 Lake Sarah CLPW. Complete

IN-4 Gully in Baker Park Reserve. In process.

ME-4 Lake Ardmore neighborhood Projects. This is redundant with the 5 new, specific projects that resulted from the Ardmore SWA and has been removed.

2017 **IN-5 Lake Sarah CLPW.** 2017 is the final year of the 5-year CLPW treatment plan.

IN-7 Raingardens in Independence SWA. Opportunity-based, possibly group with Opportunity BMP fund.

IN-9 Shoreline Restoration Projects on Lake Sarah and Independence. Opportunity-based. Could possibly use to fund the Medina Boat launch restoration, CIP 2017 ME-4.

GR4 & 9 DHC Feedlot and buffer strips BMP's. Moved to Opportunity BMP fund.

2017 IN-3 Kazin Wetland Restoration. Added March 2017.

2018 **GR-3 Hafften, Schendel, Schwappauff BMP's** was removed as part of the ongoing Opportunity BMPs.

IN-6 Lake Sarah CLPW was removed since it is now maintenance and no longer part of the 5-year treatment plan.

ME1-5 Fern Street Gully, Fern Street IESF, Aspen Ave Pond Enlargement, Medina Boat Launch, Shoreline Restoration and Stream Stabilization on channel between Lakes Ardmore and Independence. Originally applied for 2017, this project is planned for submission to BWSR as a combined project. Christopher from BWSR said the combined project will rank higher. BWSR is unlikely to fund the smaller projects on a stand-alone basis. Because this project is dependent upon grant funding which will not be available until 2018, the project was moved to that year. More information is

requested for 2017 ME-3 (Aspen Ave Pond Enlargement). BWSR and the Commission will not pay for regular pond maintenance, so the difference in cost between dredging for maintenance and improving the pond will need to be detailed.

MP-6 South Ravine cleanup. More information will be needed to move forward with this project.

2017 ME_IN-1 Baker Park Ravine Stabilization is ranked as very high because the area discharges directly to the lake, has good cost-effectiveness, and will generate a substantial phosphorus load reduction to a high priority water resource. .

2019-2020 **2017 MI-1 South Whaletail Lake Alum Treatment.** Christopher noted that BWSR would rate this project very high in grant funding since the project could result in de-listing the lake for impairments.