Poorman Creek instream flow

FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION

Please fill in the highlighted areas

all sections (IA, IB, IC, etc.) must be addressed or the application will be considered invalid

I. APPLICANT INFORMATION

A. Applicant Name: Clark Fork Coalition

B. Mailing Address: 140 S 4th st W #1

C. City: Missoula State: MT Zip: 59801

Telephone: 406-542-0539 ext 209 E-mail: jed@clarkfork.org

D. Contact Person: Jed Whiteley (Clark Fork Coalition)

Address if different from Applicant:

City: State: Zip:

Telephone: E-mail:

E. Landowner and/or Lessee Name (if other than Applicant): PARCS 2.0 LLC

Mailing Address: 178 Conservation Way

City: Arlington State: VT Zip: 02520

Telephone: 802-345-6695 E-mail: perkinsp@orvis.com

II. PROJECT INFORMATION*

A. Project Name: Poorman Creek Flow Restoration

River, stream, or lake: Granite Creek and tributaries

Location: Township: 14N Range: 9W Section: 25 and 36

Latitude: 46.9337 Longitude: -112.6774 *within project (decimal degrees)*

County: Lewis and Clark

B. Purpose of Project:

The Poorman Creek Flow Restoration projects purpose is to restore flow to a historically dewatered reach of Critical Bull Trout habitat on Poorman Creek. This project will increase periods of connectivity to the Blackfoot River to allow the migration of salmonids up and down Poorman's Creek for spawning and rearing purposes.

C. Brief Project Description:

The Clark Fork Coalition (CFC) is pursuing the permanent acquisition of the senior surface water rights (18 cfs) to Poorman Creek, a tributary to the Blackfoot River located near Lincoln, Montana. The Montana Department of Fish, Wildlife, and Parks and the US Fish and Wildlife Service have identified Poorman Creek as one of the most important potential bull trout spawning tributaries on the upper Blackfoot. Low streamflows has been identified as a limiting factor in bull trout recruitment from Poorman Creek, and thus restoring and protecting streamflow on Poorman Creek has been a priority for basin stakeholders for the past 15 years. Before the water rights to be acquired in this transaction were changed to instream use 15 years ago the stream would regularly dry up in the late summer and early fall, leading to fish kills, inability of mature bull trout to move upstream to spawn and loss of habitat.

Trout Unlimited's Montana Water Project (TU) has worked with the water rights owner since the early 2000s to increase flows in Poorman Creek and the Blackfoot River. TU's bylaws do not allow it to own water rights outright, so CFC has stepped in as a partner in the transaction and will hold title to and manage the water rights acquired as part of the deal. In addition to the instream flow restoration work FWP and Big Blackfoot TU have engaged in riparian fencing and revegetation on the stream reach.

The water rights have historically been used to irrigate 340 acres. Working with TU, in 2003 the landowner converted the property from flood to center pivot irrigation which resulted in a significant reduction in irrigation diversions. As a result of the conversion, 15.11 cfs were temporarily changed to instream use with Montana DNRC. Acquisition of the water rights by CFC would result in their permanent protection for instream use. Irrigation would continue on the property through a partial season limited irrigation arrangement of 3.3 cfs with a minimum flow agreement.

The terms of the deal are: "Under the proposed agreement between CFC and the landowner, CFC will purchase the three water rights(18 cfs) with the agreement to lease back 3.3 cfs to the landowner for irrigation. Under the terms, the landowner can divert up to 3.3 cfs from southernmost POD (POD #1) between May 1 and October 4 (not exceeding 690.2 AF annually) but must cease all irrigation whenever the monitoring station located above the POD reads 11 cfs or lower. Based on flow data collected by TU over the last 15 years, on average, diversion would not be allowed after July 15, as the minimum flow requirement would not be met."

A valuation of the water rights has been completed by Westwater Research LLC and is the basis for the water right purchase price. The acquisition of the water rights and the 11 cfs flow trigger will protect the stream reach from dewatering by irrigation permanently.

D. Length of stream or size of lake that will be treated: 4 miles

E. Project Budget:

Grant Request (Dollars): $ 54,700

Contribution by Applicant (Dollars): $ _____ In-kind $ _____

(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): $ 492,300 In-kind $ _____

(attach verification - See page 2 budget template)

Total Project Cost: **$ 547,000**

F. Attach itemized (line item) budget – see template

G. Attach **specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support and fish biologist support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete a *supplemental questionnaire*** (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).

H. **Attach land management & maintenance plans that will ensure protection of the reclaimed area.**

III. PROJECT BENEFITS*

A. What species of fish will benefit from this project?:

The project will benefit Westslope cutthroat trout and bull trout.

B. How will the project protect or enhance wild fish habitat?:

The project will restore wild fish habitat and connectivity in the lower 2.5 miles of Poorman Creek by adding up to 15 cfs of protected instream flow in perpetuity. Historically this reach has been up to 100% dewatered by irrigation withdrawals in the low flow months of July to September. This has led to fish mortality and the inability of bull trout to move upstream into the headwaters.

C. Will the project improve fish populations and/or fishing? To what extent?:

Yes, it is expected the project will improve fish populations and angling opportunities. Poorman Creek and its tributaries are important to bull trout and Westslope cutthroat trout recruitment in the Upper Blackfoot River.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?:

Wild fish populations are expected to increase as a result of the project, leading to more opportunity for angling success.

E. The project agreement includes a 20-year maintenance commitment. Please discuss your ability to meet this commitment.

The Clark Fork Coalition has a robust in-house flow monitoring and water management program that measures flows every two weeks throughout the low flow season on each water right CFC leases or owns. In order to make sure the 11 cfs flow trigger is honored the CFC will also install a telemetry station just above the point of diversion for the irrigation pump that will report stage height and water temperature every hour in real time during the irrigation season. CFC's Monitoring Coordinator will be responsible for notifying the landowner on when to cease irrigation diversions each year.

F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?:

Historically this reach has been up to 100% dewatered by irrigation withdrawals in the low flow months of July to September. This has led to fish mortality and the inability of bull trout to move upstream into the headwaters. The project will restore habitat and connectivity in the lower 2.5 miles of Poorman Creek by adding up to 15 cfs of protected instream flow in perpetuity.

G. What public benefits will be realized from this project?:

Public benefits from this project will include: improved quantity and quality of aquatic habitat, improved water quality, increased fish numbers, enhanced fishing opportunities and an improved tourism economy.

H. Will the project interfere with water or property rights of adjacent landowners? (explain):

The project will not interfere with the water or property rights of adjacent landowners. The water rights to be purchased have already been instream for 15 years and upstream landowners have adjusted their irrigation to match the consistent use of these rights.

I. Will the project result in the development of commercial recreational use on the site?: (explain):

No, there is no planned development of commercial recreational use at the site of the project.

J. Is this project associated with the reclamation of past mining activity?:

No

Each approved project applicant must enter into a written agreement with Montana Fish, Wildlife & Parks specifying terms and duration of the project. The applicant must obtain all applicable permits prior to project construction. A competitive bid process must be followed when using State funds.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: Karen Knudsen Date: 11/30/17

Sponsor (if applicable): _____

***Highlighted boxes will automatically expand.**

Mail To: Montana Fish, Wildlife & Parks
Fisheries Division
PO Box 200701
Helena, MT 59620-0701

E-mail To: Michelle McGree
mmcgree@mt.gov
(electronic submissions MUST be signed)

Incomplete or late applications will be rejected and returned to applicant.
Applications may be rejected if this form is modified.

*****Applications must be signed and *received* by the Future Fisheries Program Officer in Helena *before* December 1 and June 1 of each year to be considered for the subsequent funding period.*****

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

Both tables must be completed or the application will be returned

WORK ITEMS (ITEMIZE BY CATEGORY)	NUMBER OF UNITS	UNIT DESCRIPTION*	COST/UNIT	TOTAL COST	CONTRIBUTIONS			
					FUTURE FISHERIES REQUEST	IN-KIND SERVICES**	IN-KIND CASH	TOTAL
Personnel* **								
Survey				$ -				$ -
Design				$ -				$ -
Engineering				$ -				$ -
Permitting				$ -				$ -
Oversight				$ -				$ -
				$ -				$ -
			Sub-Total	$ -	$ -	$ -	$ -	$ -
Travel								
Mileage				$ -				$ -
Per diem				$ -				$ -
			Sub-Total	$ -	$ -	$ -	$ -	$ -
Construction Materials** **								
Water rights	1	LS	$547,000.00	$ 547,000.00	54,700.00		492,300.00	$ 547,000.00
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
			Sub-Total	$ 547,000.00	$ 54,700.00	$ -	$ 492,300.00	$ 547,000.00
Equipment and Labor								
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
			Sub-Total	$ -	$ -	$ -	$ -	$ -
Mobilization								
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
			Sub-Total	$ -	$ -	$ -	$ -	$ -
			TOTALS	$ 547,000.00	$ 54,700.00	$ -	$ 492,300.00	$ 547,000.00

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(Revised 11/30/2017)

OTHER REQUIREMENTS:

All of the columns in the budget table and the matching contribution table MUST be completed appropriately or the application will be invalid. Please see the example budget sheet for additional clarification.

*Units = feet, hours, inches, etc. Do not use lump sum unless there is no other way to describe the costs.

**Can include in-kind materials. Justification for in-kind labor (e.g. hourly rates used for calculations). Describe here or in text.

Reminder: Government salaries cannot be used as in-kind match

***The Review Panel suggests that design and oversight costs associated with a proposed project not exceed 15% of the total project budget. If design and oversight costs are in excess of 15%, applications must include a minimum of two competitive bids for the cost of undertaking the project.

****The Review Panel recommends a maximum fencing cost of $1.50 per foot. Additional costs may be the responsibility of the applicant and/or partners.

MATCHING CONTRIBUTIONS (do not include requested funds)

CONTRIBUTOR	IN-KIND SERVICE	IN-KIND CASH	TOTAL	Secured? (Y/N)
Columbia Basin Water Transaction Program	$ -	$ 492,300.00	$ 492,300.00	N
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
TOTALS	$ -	$ 492,300.00	$ 492,300.00	

Poorman Creek instream flow

FUTURE FISHERIES IMPROVEMENT PROGRAM

SUPPLEMENTAL INFORMATION SHEET FOR WATER LEASING OR WATER SALVAGE PROJECTS

The following additional information is requested to supplement the Future Fisheries Application for projects associated with water leasing or water salvage. Please complete this supplemental form and submit it as part of the Future Fisheries Grant Application.

1. **Please complete the following table describing the water right(s) associated with the proposed project.** Note: Much of this information can be obtained either from your own water rights records or online at http://www.dnrc.state.mt.us/wrd/home.htm (choose "water rights" and then select an index to look up applicable claims)

RIGHT NUMBER; WATER SOURCE	POINT OF DIVERSION	QUANTIFIED FLOW (CFS)/ VOLUME (AF)/ IRRIGATED ACRES	PRIORITY DATE; PERIOD OF USE	RELATIVE PRIORITY ON WATER SOURCE	PURPOSE OF WATER RIGHT	OTHER CLAIMED ON THE STREAM SENIOR TO YOUR LISTED CLAIMS
76F 97787 00	SENE Section 36, T14N, R9W	9.5 cfs / 2,823 acre feet / 208 irrigated acres	7/22/1889; May 1st through October 4th	3rd priority of 30 claims	Irrigation/Instream	4.46 cfs senior to this right
76F 97790 00	SENE Section 36, T14N, R9W	8.91 cfs / 2,482 acre feet / 132 irrigated acres	7/22/1889; May 1st through October 4th	3rd priority of 30 claims	Irrigation/Instream	4.46 cfs senior to this right
76F 77575 00	NWNWSW Section 25, T14n, R9W	2.67 cfs / 400 acre feet / 270 irrigated acres	7/22/1889; May 1st through October 1st	30th priority of 30 claims	Irrigation	30 cfs senior to this right

2. **In the last 10 years, has your full water right amount regularly been available at your point of diversion throughout your period of use?**

   Yes / No (Please circle one)

   Have you ever made "a call" on junior water users to obtain the water you needed (through a water commissioner or otherwise)?

   Yes / No (Please circle one)

3. **Please describe or include a summary of any measurements of the amount of water you have regularly diverted and how much typically flows by your diversion during different time periods.**

Please see attached monitoring data

4. **Has your local FWP fish biologist confirmed that your leasing/salvage project addresses a stream flow problem that significantly limits the fishery?**

   Yes / No (Please circle one)

5. **How much actual water (often different than just the remainder of your water rights) will be added to the stream through completion of your project?**

   15 **Please fill in and circle one – cfs / gpm / miners inches**

   What length of stream will benefit from this additional flow? **(Note: Under certain circumstances, senior water can be protected legally from diversion by downstream junior users.)**

   2.5 **miles (please fill in or describe)**

6. **Is there a water commissioner on your stream? Yes / No (Please circle one)**

   Are you willing to actively assist in monitoring and/or protecting the conserved water instream? Yes / No (Please circle one and describe)

The Clark Fork Coalition will measure flows every two weeks throughout the low flow season on these water rights. In order to make sure the 11 cfs flow trigger is honored the CFC will also install a telemetry station just above the point of diversion for the irrigation pump that will report stage height and water temperature every hour in real time during the irrigation season. CFC's Monitoring Coordinator will be responsible for notifying the landowner on when to cease irrigation diversions each year. Monitoring data will be compiled at the end of each irrigation season in order to create a stream hydrograph.

MONTANA TROUT UNLIMITED DISCHARGE MEASUREMENT LOG-IN SHEET

Discharge measurement of Poorman Creek @ Mouth nr Lincoln, MT

No.	Date	Hydrographer	Width ft	Area Sq ft	Mean Vel,fps	Gage Ht,ft	Discharge Cfs	No. Sec	Time	H2o temp F	Method	Remarks
1	6/18/03	Roberts/Bradshaw	7.5	5.19	0.69	1.06	**3.59**	23		59.0	0.6	MMB meter used
2	6/29/03	Bradshaw/Bradshaw	6.5	3.25	0.17	0.81	**0.54**	20		54.0	0.6	MMB meter used
3	6/13/04	Bradshaw/McDonald	8.9	6.89	1.04	1.30	**7.14**	23		50.0	0.6	MMB meter used
4	6/21/04	B.McDonald	8.3	6.32	0.77	1.17	**4.87**	26		51.0	0.6	MMB meter used
5	7/3/04	B.McDonald	7.8	5.01	0.54	1.01	**2.71**	25		56.0	0.6	MMB meter used
6	6/7/05	Bradshaw/Ransier/ Williams	10.3	14.90	1.92	2.00	**28.56**	18	12:00 PM	42.0	0.6	MMB#2
7	7/22/05	Williams/Ransier	9.2	5.85	0.64	0.98	**3.73**	23	11:15 AM	54.0	0.6	MMB#2, measured dstr of Staff, some grass
8	9/6/05	Stan Bradshaw	4.5	2.04	0.38	0.71	**0.77**	17	3:30 PM	56.0	0.6	MMB#2, measured 30ft dstr of Staff, some grass
9	8/3/06	Ransier/Shields	6.5	3.15	0.68	0.83	**2.13**	20	12:05 PM	54.0	.6 FWP MMB	Riffle cntrl, some aquatic growth , meas 25ft dstr of Aqua-rod
10	6/2/07	Stan Bradshaw	5.5	6.31	1.58	1.12	**9.96**	17	12:30 PM		.6 MMB#1	Considerable amount of aquatic growth,plot to right of rating
11	7/12/07	Raniser	4.1	4.27	0.95	0.94	**4.07**	15		59.0	.6MMB#2	No comments on control on notes, assume aquatic growth, plots to right of rating.
12	5/9/08	Shields/Bradshaw				0.18	**0.00**		2:30 PM		Observed	No flow, small pool at OG, flow is 7.8cfs upstr, but hasn't reached here yet, observed water going into gravel pool about 1/4 mi upstr.
13	6/13/08	Bradshaw/Eaton	12.0	15.1	2.43	1.87	**36.7**	27	2:00 PM	44.0	MMB#1	Cntrl,clear minor grass, some .2/.8(6.5-3.5)
14	7/11/08	Ransier	9.3	6.33	1.55	1.00	**9.83**	17	9:45 AM	46.0	MMB#2	Riffle-weeds,aquatic growth
15	8/25/08	Ransier	5.4	2.93	0.43	0.80	**1.26**	14	12:25 PM	50.0	MMB#1	Meas 20 ft ab bridge?
16	10/7/08	Stan Bradshaw	6.0	2.06	0.70	0.61	**1.43**	18	12:30 PM	42.0	0.6 MMB#1	Clear, no weeds, meas below staff g PZF= .4 (.20)
17	6/16/09	Ransier/Karper	10.2	10.26	2.36	1.44	**24.20**	26	2:00 PM	45.0	0.6 MMB#1	Assume clear(no comments on note sheet
18	7/9/2009	P. Karper	9.5	10	1.95	1.31	**19.54**	23	11:25 AM	45	0.6 MMB#1	Riffle, some grass on edges, 10 ft dstr of staff
Insp	7/14/2009	Bradshaw/Roos				1.28	18.6 RT					
19	7/23/2009	P. Karper	8.7	7.73	1.62	1.09	**12.52**	27	11:25 AM	51	0.6 MMB#1	Riffle, some grass on edges, 10 ft dstr of staff
Insp	7/23/2009	C. Roos				1.08	12.6 RT					
Insp	8/3/2009	C. Roos				0.96	9.66 RT					
20	8/14/2009	P. Karper	7.8	6.04	1.6	0.96	**9.69**	28	12:00 PM	51	0.6 MMB#1	Riffle with minor aquatic growth, 12 ft dstr of staff
Insp	8/16/2009	C. Roos				0.95	9.43 RT					
Insp	8/25/2009	C. Roos				0.85	7.31 RT					
21	9/3/2009	P. Karper	7.3	4.38	1.13	0.72	**4.94**	23	10:00 AM	49	0.6 MMB#1	Riffle with minor aquatic growth, 12 ft dstr of staff
22	6/10/2010	P. Karper	11.1	13.15	2.6	1.68	**34.24**	23	12:25 PM	45	.6MMB#1	Riffle,clear GhtZF= 1.68 -1.5 = 0.18
23	6/29/2010	P. Karper	10.6	12.15	2.42	1.58	**29.4**	24	11:15 AM	48	0.6 MMB#1	Riffle, minor algal growth.

Water Legend Hydrology
Ron Shields
6184 Head Ln Helena,MT
406-442-4854 431-7151

11/30/201711:51 AM

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24	7/31/2010	P. Karper	8	5.64	1.72	0.96	**9.72**	28	12:50 PM		0.6 MMB#1	Riffle, clear cattle causing muddy water no irrigation

Discharge measurement of Poorman Creek @ Mouth nr Lincoln, MT

No.	Date	Hydrographer	Width ft	Area Sq ft	Mean Vel,fps	Gage Ht,ft	Discharge Cfs	No. Sec	Time	H2o temp F	Method	Remarks
25	9/2/2010	P. Karper	6.8	3.92	1.62	0.8	**6.33**	26	12:00 PM		0.6 MMB#1	Riffle, minor aquatic growth, plots OK -1.4%
26	7/18/2011	P. Karper	11.8	9.63	2.3	1.5	**22.2**	27			0.6 PYG	Riffle, clear
27	8/15/2011	Phil Karper	9.5	5.65	1.63	1.08	**9.23**	25	12:45 PM	54	0.6 PYG	Riffle, clear Plots -0.15 ft to last rating.
28	9/7/2011	Phil Karper	9.5	4.57	1.38	0.96	**6.32**	23	1:00 PM	50	0.6 PYG	Riffle Clear, plots -0.16 ft. to rating
29	3/29/2012	Phil Karper	5.3	3.67	0.53	0.71	**1.93**	24	11:30 AM	37	0.6 PYG	Riffle,clear PZF=0.71-0.33=0.38 ft On RT 4
30	6/12/2012	Phil Karper	9.9	10.35	2.44	1.56	**25.26**	29	11:50 AM	48	0.6 PYG	Riffle,clear PZF= 0.36+-0.05ft no irrigation
Insp	7/6/2012	Sara Schmidt				1.16	12.6 RT					
31	7/9/2012	Phil Karper	9.4	7.07	1.71	1.14	**12.1**	26	11:25 AM	55	0.6 PYG	
Insp	7/20/2012	Sara Schmidt				1.06	9.8 RT					
Insp	7/27/2012	Sara Schmidt				1.01	8.5 RT					
32	7/31/2012	Phil Karper	9.4	5.62	1.38	0.98	**7.75**	27	11:00 AM	47	0.6 PYG	Clear, riffle, PZF 0.98'-0.72' = 0.26+-.03 ft. Plots +.04ft
Insp	8/10/2012	Sara Schmidt				0.92	6.38 RT					Shift applied
33	8/21/2012	P. Karper	9.3	4.32	1.15	0.86	**4.96**	26	11:30 AM	54	0.6 PYG	Clear, riffle, PZF 0.86'-0.60' = 0.26 ft.
Insp	8/28/2012	Sara Schmidt				0.83	4.58 RT					
34	9/14/2012	Shields/Bradshaw	4.9	5.05	0.69	0.76	**3.48**	20	10:35 AM	42	0.6 PYG	Riffle,clr GHZF=0.76-0.50=0.26ft meas 15' upstr
35	6/8/2013	Phil Karper	9.8	7.05	2.25	1.16	**15.86**	25	11:15 AM	49	0.6 MMB#1	Riffle,clr GHZF=1.16-0.9=0.26ft meas 15' dstr+0.12shift
36	6/30/2013	Phil Karper	9.5	6.58	1.63	1.01	**10.7**	26	12:00 PM	58	0.6 PYG	Riffle,clear. PZF=0.19ft. Shift +0.08ft
37	7/24/2013	Phil Karper	9	4.04	1.1	0.77	**4.46**	22	10:20 AM	54	0.6 PYG	Riffle minor alage,clear. PZF=0.21ft. Shift +0.06ft
38	8/17/2013	Phil Karper					**0**					No flow,
39	6/14/2014	Phil Karper	9.8	7.69	2.36	1.12	**18.2**	25	10:30 AM	48	0.6 MMB#1	Riffle clr, plots+0.20ft
40	7/3/2014	Phil Karper	9.3	5.57	1.65	0.9	**9.22**	24	10:25 AM	51	0.6 Phil'sPyg	Riffle clr, plots+0.14ft
41	7/28/2014	Phil Karper	9	4.04	1.26	0.74	**5.09**	25	9:45 AM	50	0.6 Phil'sPyg	Riffle minor aquatic, plots+0.12ft PZF=0.74-.60= 0.14ft
42	9/4/2014	Phil Karper	8.2	3.03	0.89	0.61	**2.71**	22	12:50 PM	52	0.6 Phil'sPyg	some algae on riffle cntrl, PZF=.61-.47= 0.14ft.
43	6/13/2015	Phil Karper	9.2	6.2	1.89	0.99	**11.73**	22	10:55 AM	50	0.6 Phil'sPyg	Clear riffle, PZF=0.99-.85=0.14+-0.02ft
44	7/5/2015	Phil Karper	8.5	4.22	1.29	0.77	**5.43**	24	11:05 AM	53	0.6 Phil'sPyg	Plots -0.02ft to last RT
45	7/26/2015	Phil Karper	8.3	3.02	0.88	0.6	**2.66**	24	10:55 AM	57	0.6 Phil'sPyg	minor aquatic, Pzf=0.60-0.48=0.12ft irrigating 2 pivots Plots +0.11ft to last RT
46	8/15/2015	Phil Karper	7.3	2.11	0.69	0.51	**1.45**	23	10:35 AM	56	0.6 Phil'sPyg	minor aquatic, Pzf=0.51-0.34=0.17ft Not irrigating Plots +0.10ft to last RT
47	9/2/2015	Phil Karper	4.5	1.25	0.52	0.43	**0.65**	22	11:15 AM	53	0.6 Phil'sPyg	minor aquatic, Pzf=0.43-0.28=0.15ft Not irrigating Plots +0.08ft to last RT
48	06/09/16	Phil Karper	8.9	6.18	1.86	0.9	**11.5**	25	10:30 AM	50	0.6 Phil'sPyg	Riffle,clr Not irrigating PZF=0.05ft.

Water Legend Hydrology
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406-442-4854 431-7151

49	06/30/16	Phil Karper	7.8	3.7	1.28	0.68	**4.74**	21	10:50 AM	54	0.6 Phil'sPyg	Riffle,some aquatic growth irrigating? PZF=0.08ft.
50	07/21/16	Phil Karper	4.9	1.74	0.45	0.4	**0.78**	20	11:05 AM	61	0.6 Phil'sPyg	Riffle,some aquatic growth irrigating? PZF=0.14ft.

Discharge measurement of Poorman Creek @ Mouth nr Lincoln, MT

No.	Date	Hydrographer	Width ft	Area Sq ft	Mean Vel,fps	Gage Ht,ft	Discharge Cfs	No. Sec	Time	H2o temp F	Method	Remarks
51	8/11/2016	Phil Karper	4.7	1.66	0.43	0.36	**0.71**	20	2:00 PM	60	0.6 Phil'sPyg	Minor algae riffle cntr **NO irrigation** PZF = 0.09 ft
52	09/01/16	Phil Karper					dry					
53	06/20/17	Phil Karper	9.1	8.39	2.37	1.19	**19.9**	24	11:25 AM	51	0.6 Phil'sPyg	Riffle, clr. Plots -0.03ft to extension on RT#5
54	07/12/17	Phil Karper	9.1	8.73	2.32	1.2	**20.2**	22	11:30 AM	51	0.6 Phil'sPyg	Riffle, clr. Plots -0.03ft to RT#5 **Not irrigating**
55	08/08/17	Phil Karper	8.9	7.34	1.95	1.04	**14.9**	23	1:40 PM	58	0.6 Phil'sPyg	Riffle minor aquatic Plot on RT#5 **Not irrigating?**
56	09/08/17	Phil Karper	8.7	5.61	1.57	0.83	**8.81**	22	1:35 PM	51	0.6 Phil'sPyg	Riffle minor aquatic+0.08ft shift RT#5 **Not irrigating**

Water Legend Hydrology
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Attachments Table of Contents

Attachment A...Maps

Attachment B...Maintenance and Management Plan

Attachment C...Photos

Attachment D...Valuation

Attachment A

Poorman Creek instream flow

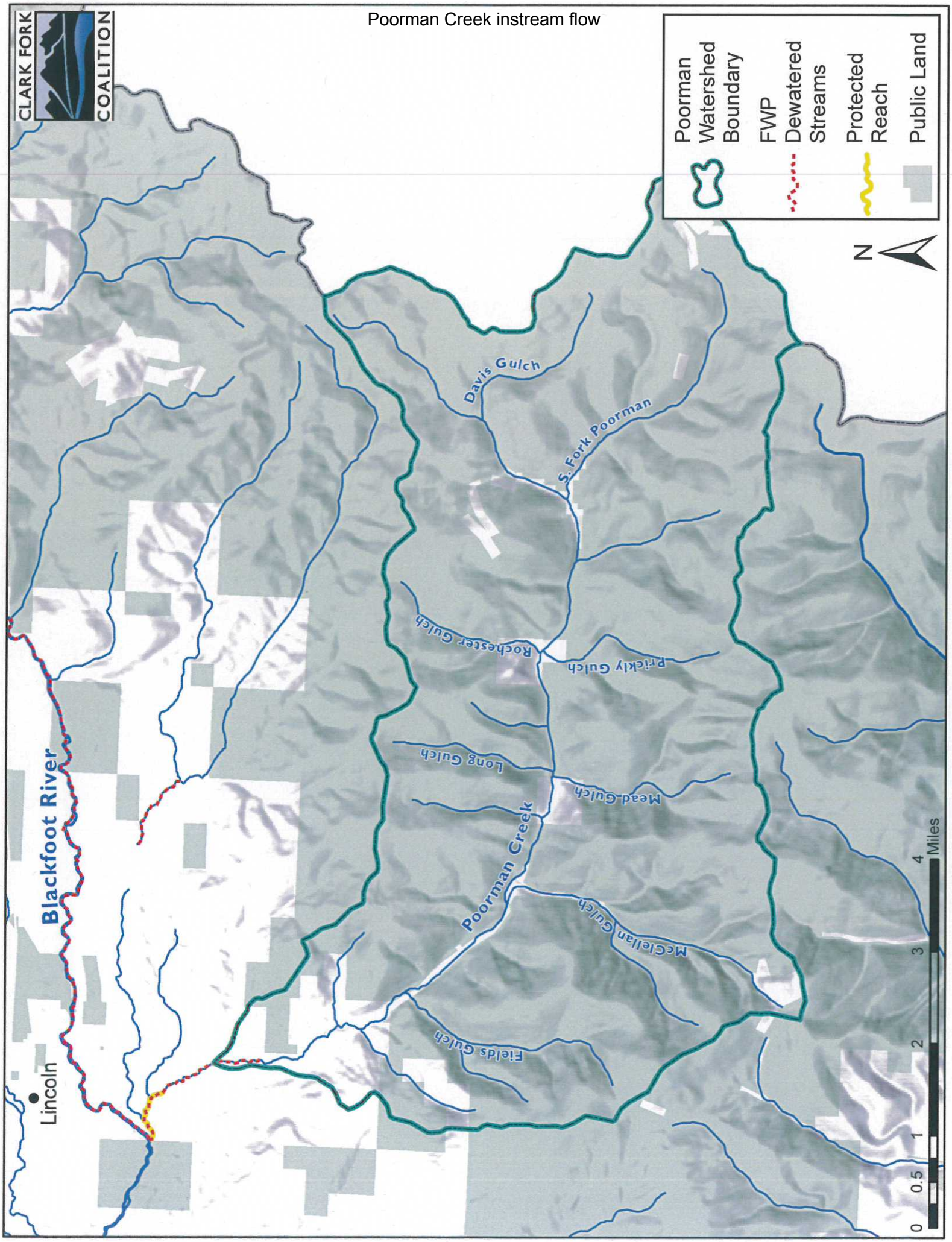
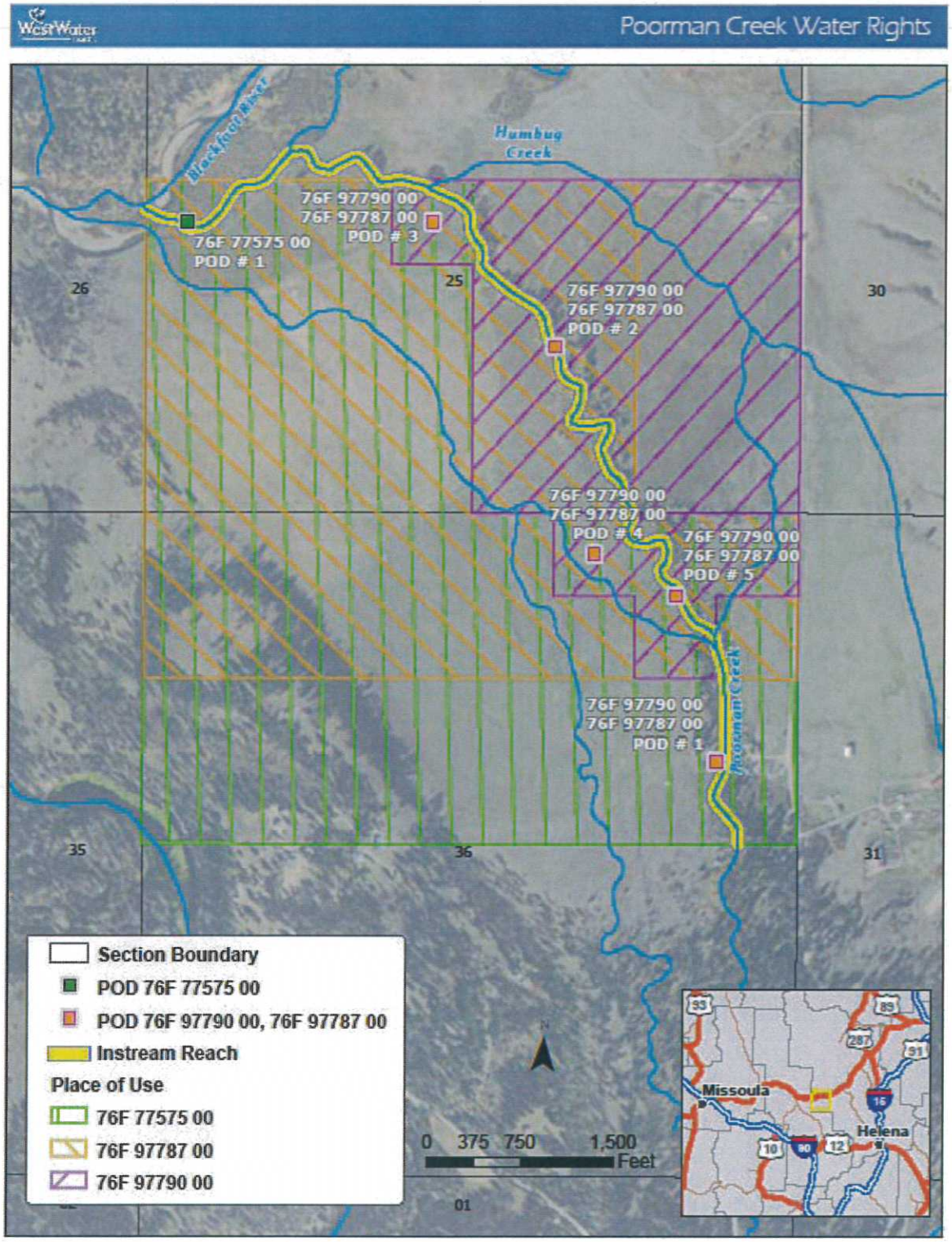


Figure 1. Water Rights Map



Attachment B

Section II. H. Land Management & Maintenance Plan

The Clark Fork Coalition will measure flows every two weeks throughout the low flow season on these water rights. In order to make sure the 11 cfs flow trigger is honored the CFC will also install a telemetry station just above the point of diversion for the irrigation pump that will report stage height and water temperature every hour in real time during the irrigation season. CFC's Monitoring Coordinator will be responsible for notifying the landowner on when to cease irrigation diversions each year. Monitoring data will be compiled at the end of each irrigation season in order to create a stream hydrograph.

Attachment D

Poorman Creek Photos

Poorman Creek riffle at 8 cfs of flow

Poorman Creek when irrigation was turned on during low flows

Poorman Creek instream flow

Poorman Creek instream flow