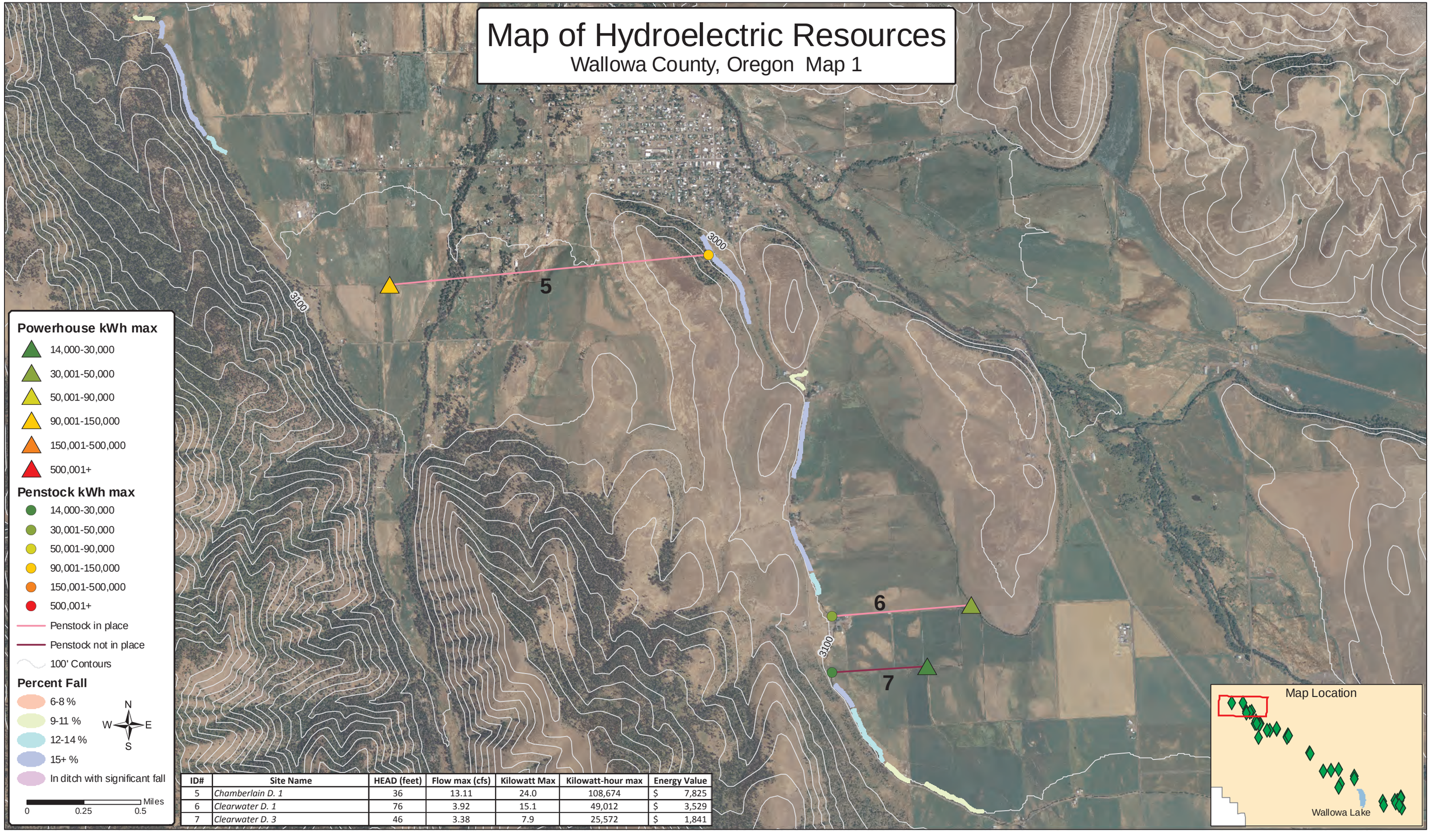
Map of Hydroelectric Resources

Wallowa County, Oregon Map 1



ID#	Site Name	HEAD (feet)	Flow max (cfs)	Kilowatt Max	Kilowatt-hour max	Energy Value
5	*Chamberlain D. 1*	36	13.11	24.0	108,674	$ 7,825
6	*Clearwater D. 1*	76	3.92	15.1	49,012	$ 3,529
7	*Clearwater D. 3*	46	3.38	7.9	25,572	$ 1,841

Chamberlain D.1

Site & Contact

Site Name	**Chamberlain D.1**
Ditch Name	**Chamberlain Ditch**
Ditch Company	**Chamberlain Ditch Company**
Contact Phone d/m	**Glade Jackson, 541 886 8721**

Site Location

Powerhouse		**Penstock**	
Latitude	45.33781N	Latitude	45.33850N
Longitude	117.33401W	Longitude	117.31660W

Resource Details

Water Right no.	80877, 80878	Return Flow Chamberlain Ditch	
Head (feet)	36	Pipe Diameter/inches	30”
Pipe In Place? ☒ Yes ☐ No Notes - This is an existing pipe located on the South end of Wallowa. It runs west for a total of 1.5 miles and exhausts into Chamberlain Ditch. It starts at 42" diameter and reduces to 30" diameter after 1 mile.			
Flow Max (cfs)	13.11	Flow Min (cfs)	3.39
kWh Max	208,674	kWh Min	20,088
kW Max	24	Distance to transmission	1347
Annual Revenue Max	$7,826	Pipe Length (feet) 7917	

Project Costs

Pipeline Costs	n/a
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$145,000
Install Costs	$26,484
Permitting Costs	$12,700
Feasibility & Engineering	$21,200
Interconnection	$44,525
TOTAL COST	$261,909

Notes –
This is an existing pipe located on the South end of Wallowa. It runs west for a total of 1.5 miles and exhausts into Chamberlain Ditch.

The pipe begins as 42" diameter and reduces to 30" diameter after 1 mile.

Site: CHAMBERLAIN DITCH 1

Clearwater D. 1

Site & Contact

Site Name	**Clearwater D. 1**
Ditch Name	**Clearwater Ditch**
Ditch Company	**Clearwater Ditch Company**
Contact Phone d/m	**Wolfe, 541 263 0802**

Site Location

Powerhouse		**Penstock**	
Latitude	45.32477N	Latitude	45.32456N
Longitude	117.30308W	Longitude	117.31067W

Resource Details

Water Right no.	79891	Return Flow Wallowa River	
Head (feet)	76	Pipe Diameter/inches	12
		Pipe In Place? ☒ Yes ☐ No Notes -	
Flow Max (cfs)	3.92	Flow Min (cfs) 1.61	
kWh Max	49,012	kWh Min	20,000
kW Max	15.1	Distance to transmission	638
Annual Revenue Max	$3,529	Pipe Length (feet) 83.6	

Project Costs

Pipeline Costs	n/a
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$125,000
Install Costs	$20,387
Permitting Costs	$12,700
Feasibility & Engineering	$21,200
Interconnection	$21,119
TOTAL COST	$212,406

Notes –

This is a pipeline used in the winter to divert run-off from flooding residents of Wallowa. As such the flow rates are not measured and are unknown.

Water in the pipe is not used for irrigation purposes and is useable for 7 months of the year.

Site: CLEARWATER D.1

Clearwater D.3

Site & Contact

Site Name	**Clearwater D. 3**
Ditch Name	**Clearwater Ditch**
Ditch Company	**Clearwater Ditch Company**
Contact Phone d/m	**Levi Hermens, 541 263 0333**

Site Location

Powerhouse		**Penstock**	
Latitude	45.3223N	Latitude	45.32241N
Longitude	117.30997W	Longitude	117.31078W

Resource Details

Water Right no.	79891	Return Flow	Wallowa River
Head (feet)	46	Pipe Diameter/inches	12
		Pipe In Place? ☐ Yes ☒ No	Notes -
Flow Max (cfs)	3.38	Flow Min (cfs)	6.79
kWh Max	25,572	kWh Min	20,000
kW Max	7.9	Distance to transmission	2373
Annual Revenue Max	$1,841	Pipe Length (feet)	2,196

Project Costs

Pipeline Costs	506
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$60,000
Install Costs	$35,308
Permitting Costs	$12,700
Feasibility & Engineering	$17,000
Interconnection	$78,367
TOTAL COST	$241,463

Notes -

Current pipe is 12” PVC used for flood irrigation. It is doubtful that the current PVC pipe pressure rating would withstand the pressure required of a microhydro project. This would be further analyzed in a feasibility study.

Site: CLEARWATER D.3

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Pipe	Pressurized Conduit (End)	1-May	30-Sept				

Energy and Water Use Efficiency							
Open_Cnls	**Grav. Fed**	**Press_Reqs**	**Thttle /Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No, In-Ditch Piped Segment	N/A	No. Several valves open into feeder ditches from pipeline. No pressure from pipeline is used for irrigation.	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem. Pumps**	**Annual_Use**	**Elec_ Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						

District Members							
Number	**Interest**	**Dev_pot'l**					
Unknown	Medium	Medium					

Measuring and Recording Flow						
Flow_Meas	**Flow_data**	**Water_recharge**				
Automatically	Is available	Yes				

Site Notes
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Pipe	Pessurized Conduit	1-May	30-Sept				

Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No, Floods with gravity	N/A	No, Private Pipeline	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem. Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their own	N/A	N/A	80	N/A
Leak_Long	**Fmrs_scrn**						
N/A	No						

District Members							
Number	**Interest**	**Dev_pot'l**					
10	Medium	Medium					

Measuring and Recording Flow						
Flow_Meas	**Flow_data**	**Water_recharge**				
Isn't Measured	Isn't Available	Yes				

Site Notes
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Pipe	Pressurized Conduit	1-May	30-Sept				

Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No, Gravity Pipeline	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem. Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	80	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						

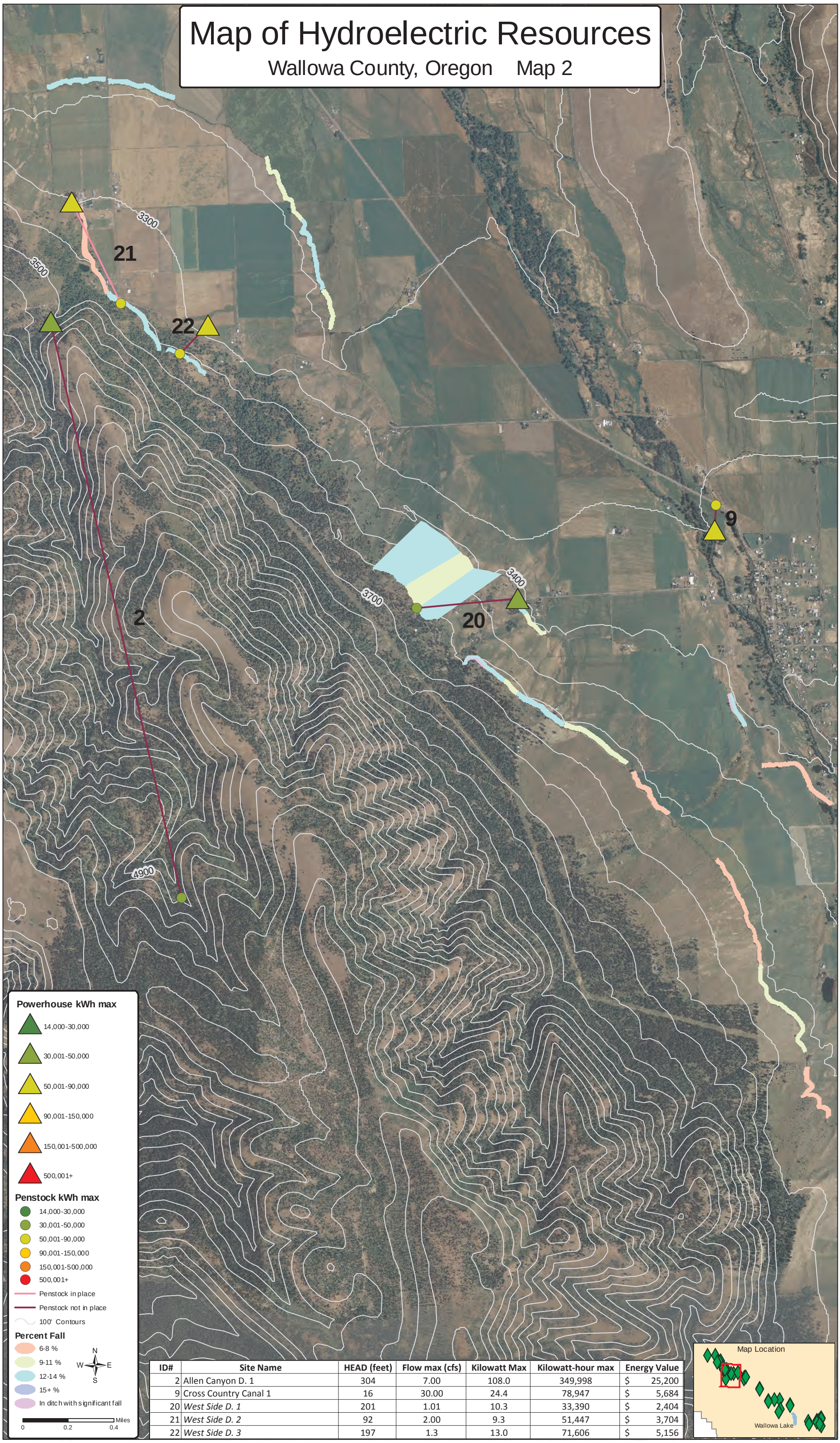
District Members							
Number	**Interest**	**Dev_pot'l**					
10	Medium	Medium					

Measuring and Recording Flow						
Flow_Meas	**Flow_data**	**Water_recharge**				
Isn't Measured	Is Not Available	Yes				

Site Notes
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.

Map of Hydroelectric Resources

Wallowa County, Oregon Map 2



ID#	Site Name	HEAD (feet)	Flow max (cfs)	Kilowatt Max	Kilowatt-hour max	Energy Value
2	Allen Canyon D. 1	304	7.00	108.0	349,998	$ 25,200
9	Cross Country Canal 1	16	30.00	24.4	78,947	$ 5,684
20	*West Side D. 1*	201	1.01	10.3	33,390	$ 2,404
21	*West Side D. 2*	92	2.00	9.3	51,447	$ 3,704
22	*West Side D. 3*	197	1.3	13.0	71,606	$ 5,156

Allen Canyon

Site and Contact

Site Name	**Allen Canyon**
Ditch Name	**Allen Canyon**
Ditch Company	**Allen Canyon Sprinkler Association**
Contact Phone d/m	**Lou Perry, 541 426 5999**

Site Location

Powerhouse		**Penstock**	
Latitude	45.30498N	Latitude	45.28886N
Longitude	117.29769W	Longitude	117.29298W

Resource Details

Water Right no.	65175 or S 39916	Return Flow	Waste Ditch to Wallowa River
Head (feet)	304	Pipe Diameter/inches	16
Pipe In Place? ☐ Yes ☒ No Notes			
Flow Max (cfs)	7.0	Flow Min (cfs)	0.23
kWh Max	349,998	kWh Min	20,000
kW Max	108.0	Distance to Transmission	2000 ft.
Annual Revenue Max	$25,200	Pipe Length (feet)	3829

Project Costs

Pipeline Costs	$59,771
Powerhouse Costs	$17,000
Turbine / Gen Set Costs	$300,000
Install Costs	$110,277
Permitting Costs	$12,700
Feasibility & Engineering	$31,000
Interconnection	$141,000
TOTAL COST	$666,747

Notes –

Allen Canyon ditch is diverted from Little Bear Cr. where it flows down Allen Canyon until it reaches the valley floor where it is used as supplemental irrigation water.

The project site would be located upstream of the valley floor.

Site: ALLEN CANYON

CROSS COUNTRY CANAL 1

Cross Country Canal 1

Site & Contact

Site Name	**Cross County Canal 1**
Ditch Name	**Cross Country Canal**
Ditch Company	**Cross Country Canal Co.**
Contact Phone d/m	**Woody Wolfe, 541 263 0333**

Site Location

Powerhouse		**Penstock**	
Latitude	45.29612N	Latitude	45.29643N
Longitude	117.26232W	Longitude	117.26160W

Resource Details

Water Right no.		Return Flow Cross County Canal	
Head (feet)	16	Pipe Diameter/inches	34
		Pipe In Place? ☐ Yes ☒ No Notes -	
Flow Max (cfs)	30	Flow Min (cfs) 7.6	
kWh Max	78,946	kWh Min	20,000
kW Max	24.4	Distance to transmission	520
Annual Revenue Max	$5,684	Pipe Length (feet) 573	

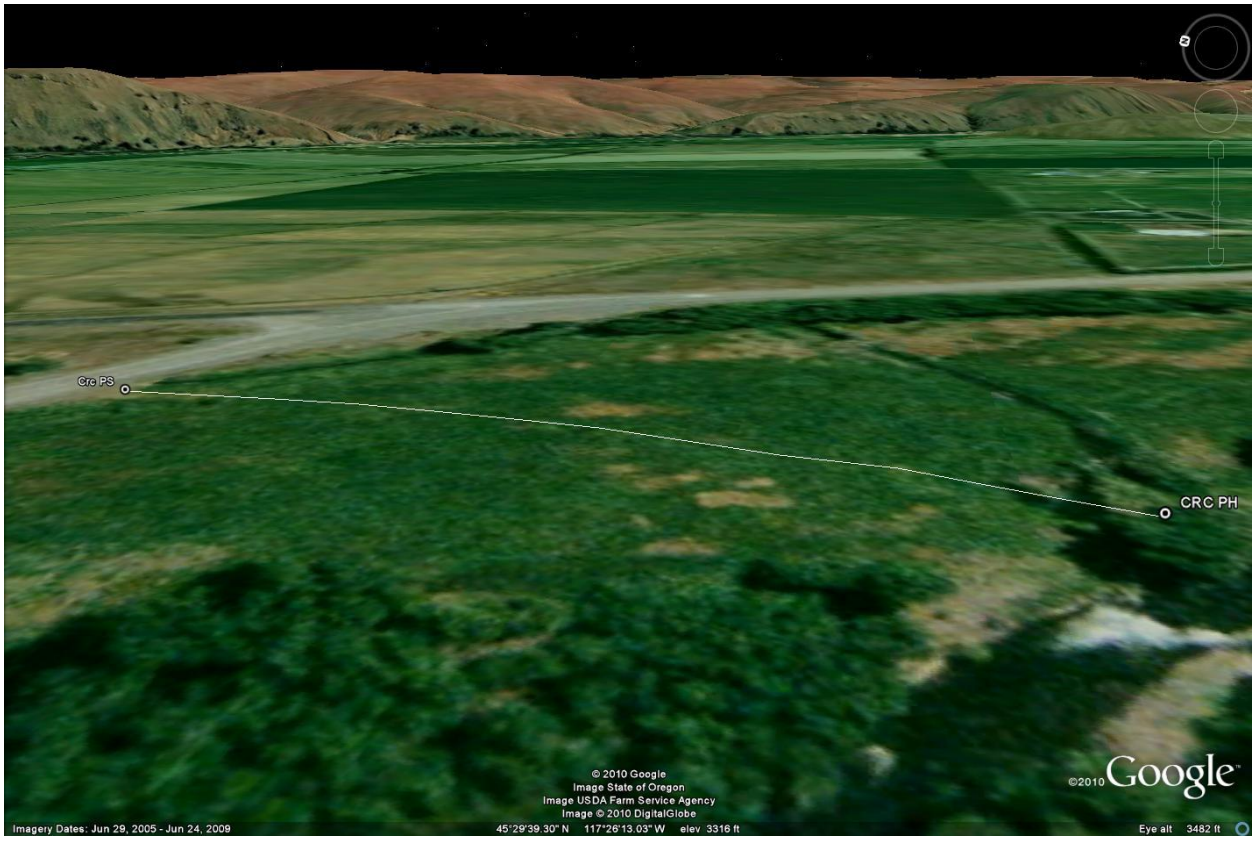
Project Costs

Pipeline Costs	$54,430
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$175,000
Install Costs	$34,471
Permitting Costs	$12,700
Feasibility & Engineering	$21,600
Interconnection	$17,234
TOTAL COST	$325,703

Notes –

Cross Country Ditch is a relatively short ditch. It is diverted from the Wallowa River and empties into the Lostine River. It serves as both an irrigation conduit and provides supplemental flows to the Lostine River in the summer months.

Site: CROSS COUNTRY CANAL 1



Site Name: West Side D.1

Site & Contact

Site Name	**West Side D. 1**
Ditch Name	**West Side Ditch**
Ditch Company	**West Side Irrigations and Water Ditch Co.**
Contact Phone d/m	**Art Brock, 541 263 0154**

Site Location

Powerhouse		**Penstock**	
Latitude	45.29581N	Latitude	45.29359N
Longitude	117.27309W	Longitude	117.27854W

Resource Details

Water Right no.	81644	Return Flow	Poley Allen
Head (feet)	201	Pipe Diameter/inches	7
		Pipe In Place? ☐ Yes ☒ No	Notes -
Flow Max (cfs)	1.01	Flow Min (cfs)	0.61
kWh Max	33,390	kWh Min	20,000
kW Max	10.3	Distance to transmission	30
Annual Revenue Max	$2,404	Pipe Length (feet)	2330

Project Costs

Pipeline Costs	$9,273
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$60,000
Install Costs	$31,142
Permitting Costs	$12,700
Feasibility & Engineering	$21,600
Interconnection	$1050
TOTAL COST	$143,766

Notes –

Flow is based on average cfs throughout irrigation season for water right no. 81644.

Site: WEST SIDE D.1

West Side D.2

Site & Contact

Site Name	**West Side D. 2**
Ditch Name	**West Side Ditch**
Ditch Company	**West Side Irrigations and Water Ditch Co.**
Contact Phone d/m	**Vern Spaur, 541 398 0219**

Site Location

Powerhouse		**Penstock**	
Latitude	45.3095N	Latitude	45.3054N
Longitude	117.29579W	Longitude	117.29358W

Resource Details

Water Right no.	81644	Return Flow Westside Ditch	
Head (feet)	92	Pipe Diameter/inches	15 necks to 12 necks to 10
		Pipe In Place? ☐ Yes ☐ No Notes -	
Flow Max (cfs)	2.0	Flow Min (cfs) 0.77	
kWh Max	51,447	kWh Min 20,000	
kW Max	9.3		
Annual Revenue Max	$3,704	Pipe Length (feet) 101.2	

Project Costs

Pipeline Costs	$38,000
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$51,000
Install Costs	$15,158
Permitting Costs	$12,700
Feasibility & Engineering	$21,600
Interconnection	$1,049
TOTAL COST	$147,507

Notes –

This project is in the final stages of FERC permitting and expected to be complete by May 2011.

Site: WEST SIDE D.2

West Side D.3

Site & Contact

Site Name	**West Side D. 3**
Ditch Name	**West Side Ditch**
Ditch Company	**West Side Irrigations and Water Ditch Co.**
Contact Phone d/m	**Bruce Dunn, 541 426 6019**

Site Location

Powerhouse		**Penstock**
Latitude	45.202761N	45.302129N
Longitude	117.285525W	117.285525W

Resource Details

Water Right no.	81644	Return Flow Poley Allen
Head (feet)	197	Pipe Diameter/inches 8
		Pipe In Place? ☐ Yes ☒ No Notes -
Flow Max (cfs)	1.3	Flow Min (cfs) 0.62
kWh Max	71,606	kWh Min 20,000
kW Max	13	Distance to Interconnection 50
Annual Revenue Max	$5,156	Pipe Length (feet) 936

Project Costs

Pipeline Costs	$5,747
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$70,000
Install Costs	$21,751
Permitting Costs	$12,700
Feasibility & Engineering	$21,600
Interconnection	$1,713
TOTAL COST	$141,511

Notes –

This site demonstrates potential that is found between West Side Ditch and Poley-Allen Ditch. These ditches may be combined, resulting in a hydropower zone between the ditches.

Site: WEST SIDE D.3

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Unlined	Open Canal	1-Jan	31-Dec				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem. Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						
District Members							
Number	**Interest**	**Dev_pot'l**					
Unknown	Medium	Medium					
Flow Information							
Flow_Meas	**Flow_data**	**Water-recharge**					
Isn't Measured	Is Not Available	Yes – Water is diverted from Little Bear Creek to supplement the Westside and Clearwater ditches. In turn, these return flows to the Wallowa River.					
Site Notes							
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.							

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Unlined	Open Canal	1-May	30-Sept				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No, This is an in-ditch segment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem. Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						
District Members							
Number	**Interest**	**Dev-pot'l**					
Unknown	Medium						
Measuring and Recording Flow							
Flow_Meas	**Flow_data**	**Water_recharge**					
Isn't Measured	Is not available	Water is diverted from the Wallowa R., it then flows through the ditch and empties into the Lostine R. which eventually empties back to the Wallowa R.					
Site Notes							
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.							

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Unlined	Open Canal	1-May	30-Sept				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No, gravity pipeline.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem_Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						
District Members							
Number	**Interest**	**Dev_pot'l**					
Unknown	Medium						
Measuring and Recording Flow							
Flow_Meas	**Flow_data**	**Water_recharge**					
Isn't Measured	Is not available.	Yes					
Site Notes							
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.							

Conveyance Information

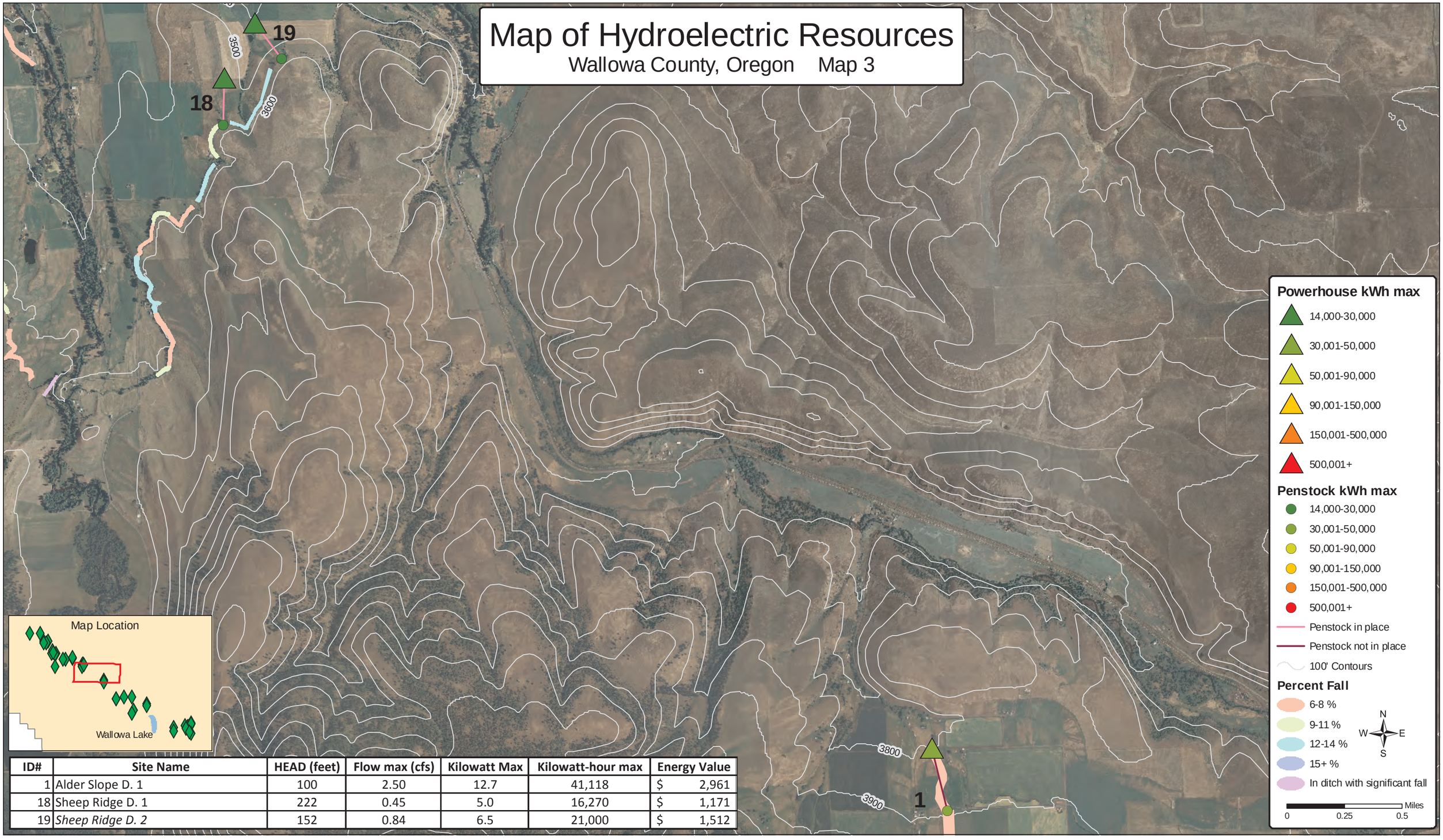
Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Pipe	Pressurized Conduit (End)	1-Jan	31-Sept				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No, gravity pipeline	N/A	No, private pipeline	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem_Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						
District Members							
Number	**Interest**	**Dev_pot'l**					
Unknown	High						
Measuring and Recording Flow							
Flow_Meas	**Flow_data**	**Water_recharge**					
Automatically	Is Available	Yes					
Site Notes							
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.							

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Unlined	Open Canal	1-May	30-Sept				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No current irrigation at this point	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem_Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						
District Members							
Number	**Interest**	**Dev_pot'l**					
Unknown	Unknown						
Measuring and Recording Flow							
Flow_Meas	**Flow_data**	**Water_recharge**					
Isn't Measured	Is Not Available	Yes					
Site Notes							
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.							

Map of Hydroelectric Resources

Wallowa County, Oregon Map 3



ID#	Site Name	HEAD (feet)	Flow max (cfs)	Kilowatt Max	Kilowatt-hour max	Energy Value
1	Alder Slope D. 1	100	2.50	12.7	41,118	$ 2,961
18	Sheep Ridge D. 1	222	0.45	5.0	16,270	$ 1,171
19	*Sheep Ridge D. 2*	152	0.84	6.5	21,000	$ 1,512

Alder Slope D.1

Site and Contact

Site Name	**Alder Slope D. 1.**
Ditch Name	**Upper Alder Slope Ditch**
Ditch Company	**Alder Slope Ditch Company**
Contact Phone d/m	**Andy Fairchild, 541 426 4634**

Site Location

Powerhouse		**Penstock**	
Latitude	45.25848N	Latitude	45.25607N
Longitude	117.20991W	Longitude	117.20922W

Resource Details

Water Right no.	9045 or 48403 or 9046	Return Flow	Waste Ditch to Wallowa River
Head (feet)	100	Pipe Diameter/inches	n/a
Pipe In Place? ☐ Yes ☒ No Notes – waste ditch for Upper and Lower Alder Slope Ditches			
Flow Max (cfs)	2.5	Flow Min (cfs)	1.22
kWh Max	41,118	kWh Min	8,100
kW Max	12.7	Distance to Transmission	30 ft.
Annual Revenue Max	$2,878	Pipe Length (feet)	1493

Project Costs

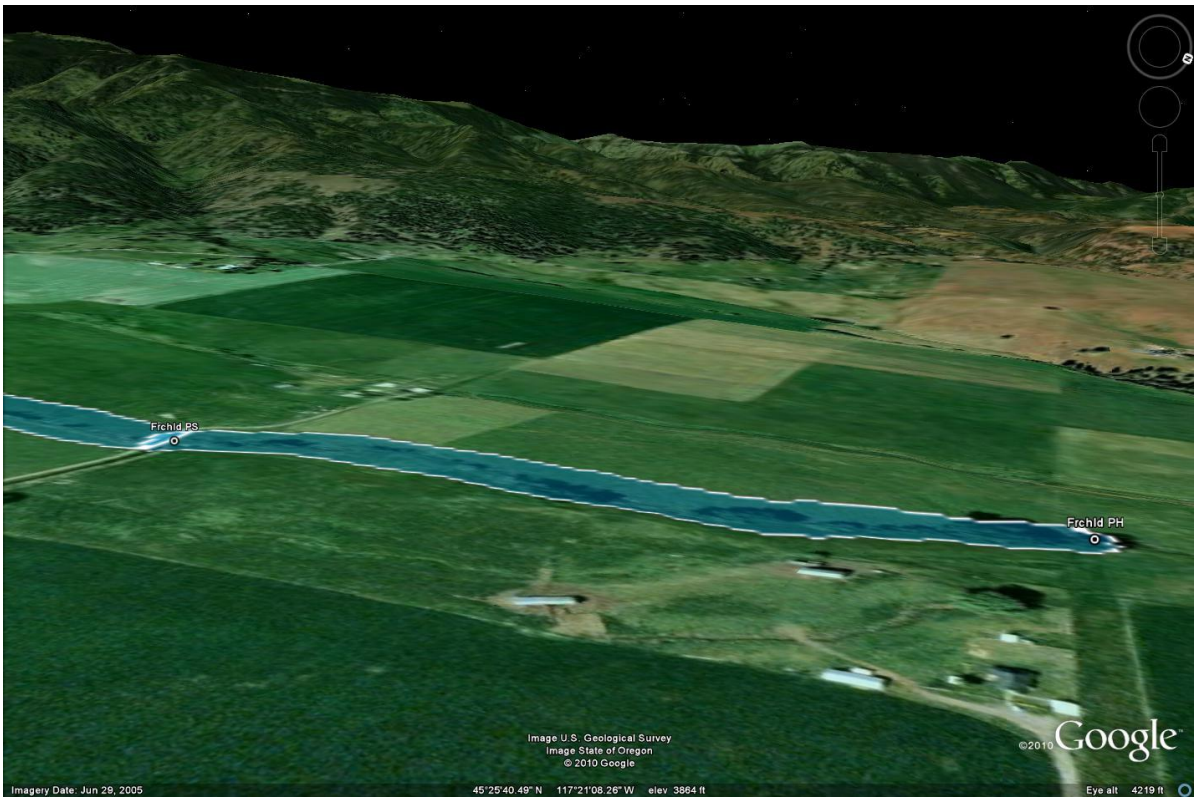
Pipeline Costs	$9,181
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$70,000
Install Costs	$25,400
Permitting Costs	$12,700
Feasibility & Engineering	$20,800
Interconnection	$1,052
TOTAL COST	$147,133

Notes –
Fairchild incurs an electric bill < $50 per month, but was nonetheless quite interested in a project. We bumped the Flow Min down to match the project proponent's electric demand via net metering.

The water that currently flows down this waste ditch has no water rights on it. According to the landowner, the flow fluctuates between 7 cfs and 0 cfs. A duel nozzle system might be appropriate to take advantage of large fluctuations in flows.

Preliminary conversations with Oregon Water Resources indicate a junior water right on the waste water may be obtainable.

Site: ALDER SLOPE D.1



Sheep Ridge D.1

Site & Contact

Site Name	**Sheep Ridge D. 1**
Ditch Name	**Sheep Ridge Ditch**
Ditch Company	**Sheep Ridge Ditch Co.**
Contact Phone d/m	**Blake Carlsen, 541 569 0166**

Site Location

Powerhouse		**Penstock**	
Latitude	45.28887N	Latitude	45.28300N
Longitude	117.24636W	Longitude	117.24656W

Resource Details

Water Right no.	3154	Return Flow Waste Ditch to Cross Country C. to Lostine R.	
Head (feet)	222	Pipe Diameter/inches	4
		Pipe In Place? ☒ Yes ☐ No Notes -	
Flow Max (cfs)	0.45	Flow Min (cfs) 0.55	
kWh Max	16,270	kWh Min	20,000
kW Max	5.0	Distance to Transmission	50
Annual Revenue Max	$1,171	Pipe Length (feet) 3,580	

Project Costs

Pipeline Costs	n/a
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$50,000
Install Costs	$15,330
Permitting Costs	$12,700
Feasibility & Engineering	$16,600
Interconnection	$1,705
TOTAL COST	$108,335

Notes –

CFS for this site is based upon the existing 4" pipeline.

Site: SHEEP RIDGE D.1

Sheep Ridge D.2

Site & Contact

Site Name	**Sheep Ridge D. 2**
Ditch Name	**Sheep Ridge Ditch**
Ditch Company	**Sheep Ridge Ditch Co.**
Contact Phone d/m	**Blake Carlsen, 541 569 0166**

Site Location

Powerhouse		**Penstock**	
Latitude	45.28680N	Latitude	45.28541N
Longitude	117.24470W	Longitude	117.24331W

Resource Details

Water Right no.	3154	Return Flow Waste ditch to Cross Country to Lostine	
Head (feet)	152	Pipe Diameter/inches	8
		Pipe In Place? ☒ Yes ☐ No Notes – about ¼ mile of pipe is in place	
Flow Max (cfs)	0.84	Flow Min (cfs) 0.80	
kWh Max	21,000	kWh Min	20,000
kW Max	6.5	Distance to Transmission	210
Annual Revenue Max	$1,512	Pipe Length (feet) 2,690	

Project Costs

Pipeline Costs	$10,706
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$60,000
Install Costs	$16,706
Permitting Costs	$12,700
Feasibility & Engineering	$18,600
Interconnection	$6,986
TOTAL COST	$136,699

Notes –

Flow for this project is based average CFS over the course of the irrigation season for designated water right.

Site: SHEEP RIDGE D.1

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Unlined	Open Canal	1-May	30-Sept				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No, With the exception of booster pumps.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem. Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	50	25	25	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						
District Members							
Number	**Interest**	**Dev_pot'l**					
90	Medium	High					
Flow Information							
Flow_Meas	**Flow_data**	**Water-recharge**					
Is Not Measured	Is Not Available	Yes					
Site Notes							
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.							

Conveyance Information

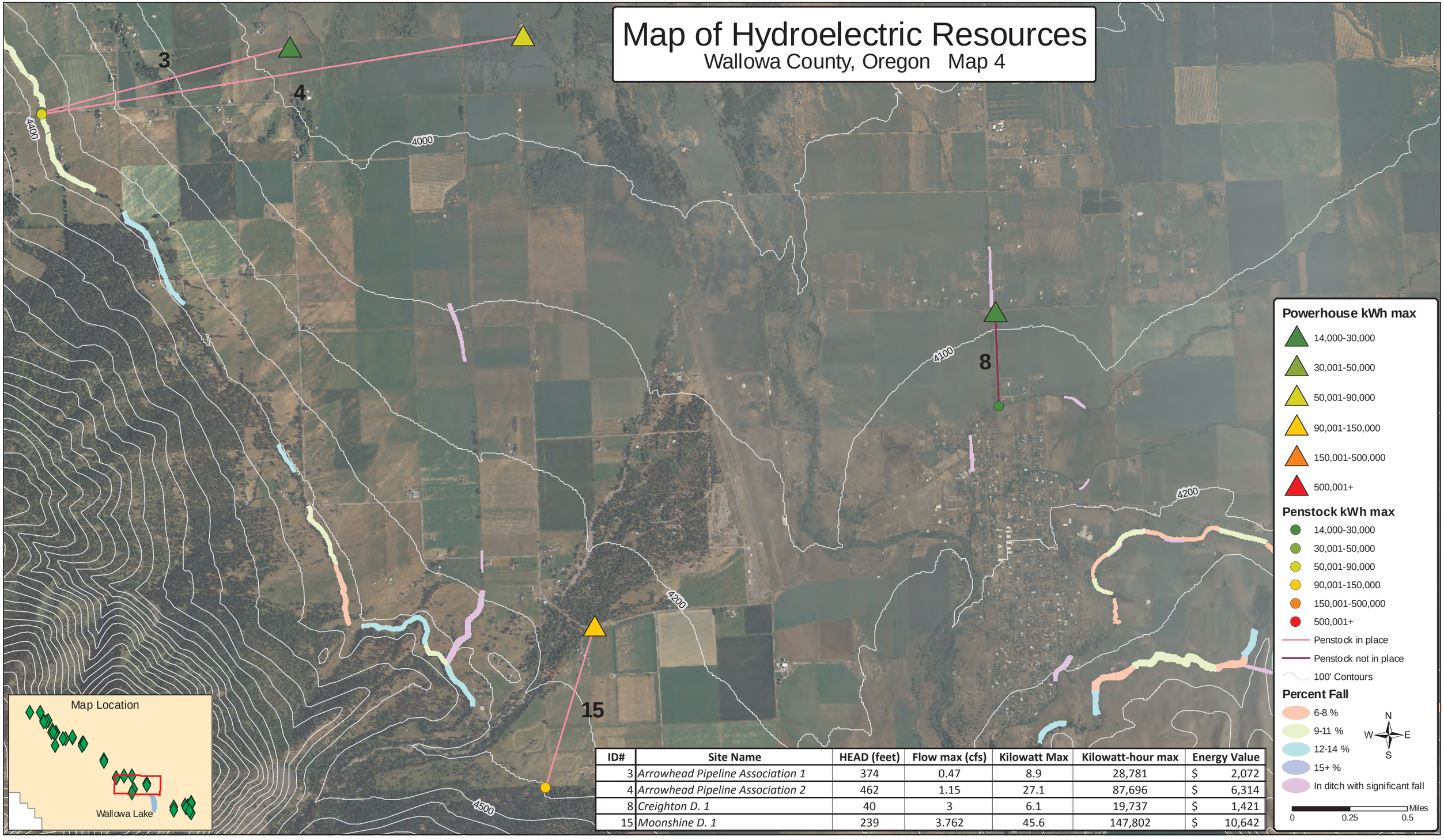
Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Pipe	Pressurized Conduit (End)	1-May	30-Sept				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No, gravity pipeline	N/A	No, private pipeline	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem_Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						
District Members							
Number	**Interest**	**Dev_pot'l**					
Unknown	High						
Measuring and Recording Flow							
Flow_Meas	**Flow_data**	**Water_recharge**					
Automatically	Is Available	Yes					
Site Notes							
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.							

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Pipe	Pressurized Conduit (End)	1-May	30-Sept				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No, gravity pipeline	N/A	No, private pipeline	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem_Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						
District Members							
Number	**Interest**	**Dev_pot'l**					
Unknown	High						
Measuring and Recording Flow							
Flow_Meas	**Flow_data**	**Water_recharge**					
Automatically	Is available	Yes					
Site Notes							
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.							

Map of Hydroelectric Resources

Wallowa County, Oregon Map 4



ID#	Site Name	HEAD (feet)	Flow max (cfs)	Kilowatt Max	Kilowatt-hour max	Energy Value
3	*Arrowhead Pipeline Association 1*	374	0.47	8.9	28,781	$ 2,072
4	*Arrowhead Pipeline Association 2*	462	1.15	27.1	87,696	$ 6,314
8	*Creighton D. 1*	40	3	6.1	19,737	$ 1,421
15	*Moonshine D. 1*	239	3.762	45.6	147,802	$ 10,642

ARROWHEAD PIPELINE ASSOCIATION 1

Arrowhead Pipeline Association 1

Site & Contact

Site Name	**Arrowhead Pipeline Association 1**
Ditch Name	**Upper Alder Slope Ditch**
Ditch Company	**Alder Slope Ditch Company**
Contact Phone d/m	**Bruce Reininger, 541 426 6420**

Site Location

Powerhouse		**Penstock**	
Latitude	45.23107N	Latitude	45.22895N
Longitude	117.17504W	Longitude	117.18843W

Resource Details

Water Right no.	3062	Return Flow Lower Alder Slope Ditch	
Head (feet)	374	Pipe Diameter/inches	12” penstock necks down to 6” pipe.
Pipe In Place? ☒ Yes ☐ No Notes - 108 psi static pressure at end			
Flow Max (cfs)	0.47	Flow Min (cfs)	0.32
kWh Max	28,781	kWh Min	20,000
kW Max	8.9	Distance to Transmission	30 ft.
Annual Revenue Max	2,015	Pipe Length (feet) 5672	

Project Costs

Pipeline Costs	n/a
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$55,000
Install Costs	$15,158
Permitting Costs	$12,500
Feasibility & Engineering	$17,600
Interconnection	$1,049
TOTAL COST	$113,507

Notes –

Reininger has a 6" pipeline that is designed to convey 0.9803 cfs.

His average cfs based on allocated acre-feet over the season is 0.3 cfs. The system should be designed small so that water users downline aren't threatened.

Finally, pipeline association letter document Reininger’s use at 0.467 cfs while irrigating, based on nozzle ratings and number of sprinkler heads.

Site: ARROWHEAD PIPELINE ASSOCIATION 1

ARROWHEAD PIPELINE ASSOCIATION 2

Arrowhead PIPELINE ASSOCIATION 2

Site & Contact

Site Name	**Arrowhead Pipeline Association 2**
Ditch Name	**Upper Alder Slope Ditch**
Ditch Company	**Alder Slope Ditch Company**
Contact Phone d/m	**Ed Jones, 541 398 0496**

Site Location

Powerhouse		**Penstock**	
Latitude	45.23115N	Latitude	45.22895N
Longitude	117.16257W	Longitude	117.18843W

Resource Details

Water Right no.	3062	Return Flow Lower Alder Slope Ditch	
Head (feet)	462	Pipe Diameter/inches	12” necks down to 9” and Ts with an 8” and 4” pipe.
		Pipe In Place? ☒ Yes ☐ No Notes -	
Flow Max (cfs)	1.15	Flow Min (cfs)	0.26
kWh Max	87,696	kWh Min	8,100
kW Max	27.1	Distance to transmission	50 ft.
Annual Revenue Max	6,324	Pipe Length (feet) 12,335	

Project Costs

Pipeline Costs	n/a
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$80,000
Install Costs	$24,430
Permitting Costs	$12,700
Feasibility & Engineering	$17,600
Interconnection	$46,650
TOTAL COST	$193,380

Notes –

According to Pipeline Association letters, Jones uses 1.15404 cfs for his irrigation infrastructure -- 518 gpm.

However, Jones is keen on a small turbine to replace a pressure relief valve. Engineering would need to be done to evaluate the feasibility of using his excess pressure for hydropower. His first priority is pressure for irrigation infrastructure.

Site: ARROWHEAD PIPELINE ASSOCIATION 2

Creighton D.1

Site & Contact

Site Name	**Creighton D. 1**
Ditch Name	**Creighton Ditch**
Ditch Company	**Associated Ditch Company**
Contact Phone d/m	**Tom Butterfield**

Site Location

Powerhouse		**Penstock**	
Latitude	45.22004N	Latitude	45.21647N
Longitude	117.13789W	Longitude	117.13789W

Resource Details

Water Right no.	2949	Return Flow	Creighton Ditch
Head (feet)	40	Pipe Diameter/inches	12
		Pipe In Place? ☐ Yes ☒ No	Notes -
Flow Max (cfs)	3.0	Flow Min (cfs)	3.9
kWh Max	19,737	kWh Min	19,737
kW Max	6.1	Distance to transmission	50
Annual Revenue Max	$1,421	Pipe Length (feet)	2164

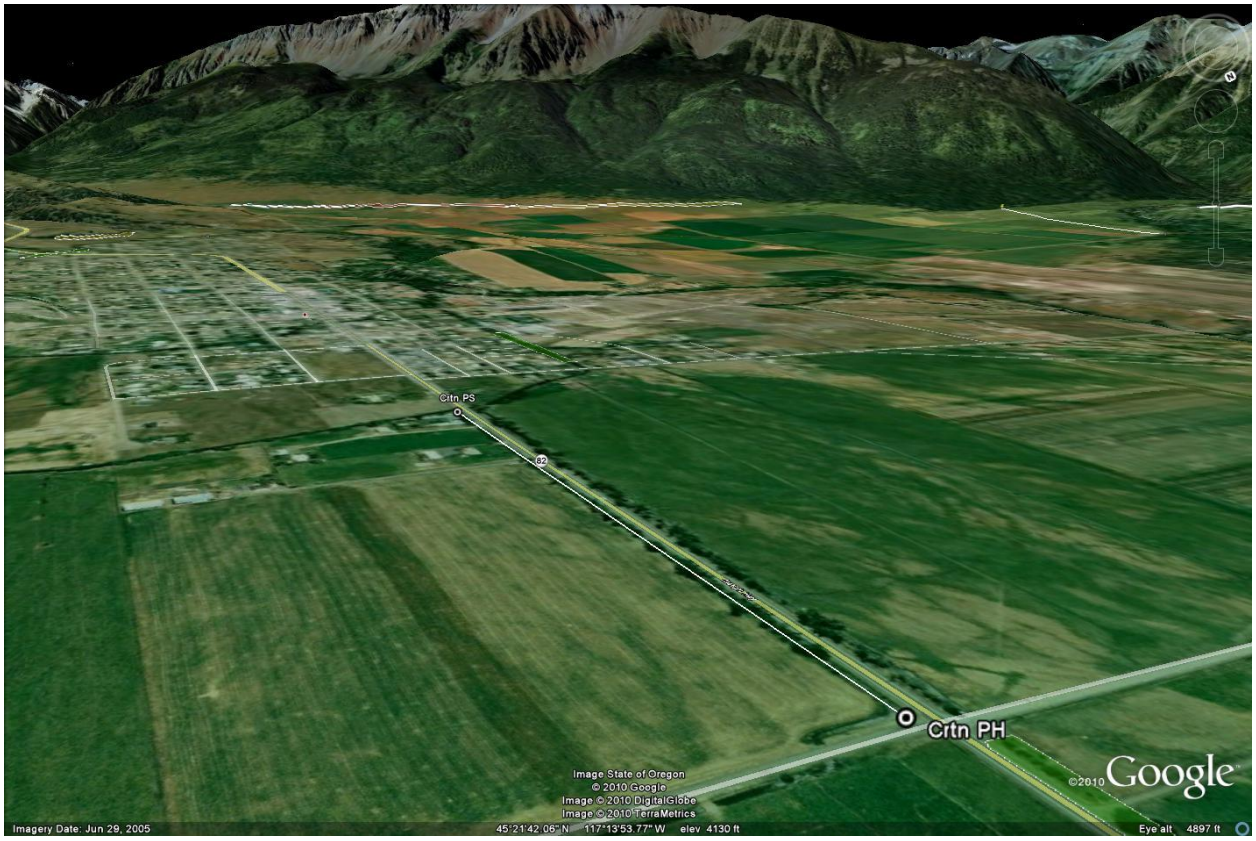
Project Costs

Pipeline Costs	$23,717
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$60,000
Construction Costs	$41,038
Permitting Costs	$12,700
Feasibility & Engineering	$21,600
Interconnection	$1,706
TOTAL COST	$168,762

Notes –

In-ditch segment. Water rights for this project are mired in Associated Ditch Co. title. Unobtainable official water right. 3 cfs is a conservative estimate for in ditch flow. Actual estimated flow > 7 cfs.

Site: CREIGHTON D.1



Moonshine D.1

Site & Contact

Site Name	**Moonshine D. 1**
Ditch Name	**Moonshine Ditch**
Ditch Company	**Moonshine Ditch Company**
Contact Phone d/m	**Hayes. 541 263 0974**

Site Location

Powerhouse		**Penstock**	
Latitude	45.20879N	Latitude	45.201683N
Longitude	117.15999W	Longitude	117.161717W

Resource Details

Water Right no.	3117	Return Flow	Waste ditch
Head (feet)	239	Pipe Diameter/inches	12
		Pipe In Place? ☒ Yes ☐ No	Notes -
Flow Max (cfs)	3.762	Flow Min (cfs)	0.51
kWh Max	147,802	kWh Min	20,000
kW Max	45.6	Distance to Transmission	100
Annual Revenue Max	$10.642	Pipe Length (feet)	3790

Project Costs

Pipeline Costs	n/a
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$145,000
Install Costs	$24,860
Permitting Costs	$12,700
Feasibility & Engineering	$17,600
Interconnection	$48,300
TOTAL COST	$260,460

Notes -

This project is a private pipeline that flows from Moonshine Ditch. It is shared by 2 private landowners. Pressure requirements will need to be maintained.

Site: MOONSHINE D.1

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Pipe	Open Canal	1-May	30-Sept				

Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/ Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No, Gravity Pipeline	N/A	Yes, 5 Pipeline assn. Members dictate pressure req's	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem. Pumps**	**Annual_Use**	**Elec. Meas.**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	100	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						

District Members							
Number	**Interest**	**Dev_pot'l**					
5	High	High					

Measuring and Recording Flow						
Flow_Meas	**Flow_data**	**Water_recharge**				
Automatically	Is available	Yes				

Site Notes
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Pipe	Pressurized Conduit (End)	1-May	30-Sept				

Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/ Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No, Gravity Pipeline	N/A	Yes, 5 pipeline assn. Members Dictate pressure req's	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem Pumps**	**Annual_Use**	**Elec. Meas.**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	100	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						

District Members							
Number	**Interest**	**Dev_pot'l**					
5	Low	Medium					

Measuring and Recording Flow						
Flow_Meas	**Flow_data**	**Water_recharge**				
Automatically	Is Available	Yes				

Site Notes
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Unlined	Open Canal	1-May	30-Sept				

Energy and Water Use Efficiency							
Open_Cnls	**Grav. Fed.**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
Some Members Pump Here	No	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem. Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	N/A	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_scrn**						
N/A	No						

District Members							
Number	**Interest**	**Dev-pot'l**					
Unknown	Medium						

Measuring and Recording Flow						
Flow_Meas	**Flow_data**	**Water_recharge**				
Isn't Measured	Is Not Available	Yes				

Site Notes
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Pipe	Pressurized Conduit (End)	1-May	30-Sept				

Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/ Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No, Gravity Pipeline	N/A	Yes, 2 pipeline owners dictate pressure reqt's	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem. Pumps**	**Annual_Use**	**Elec. Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						

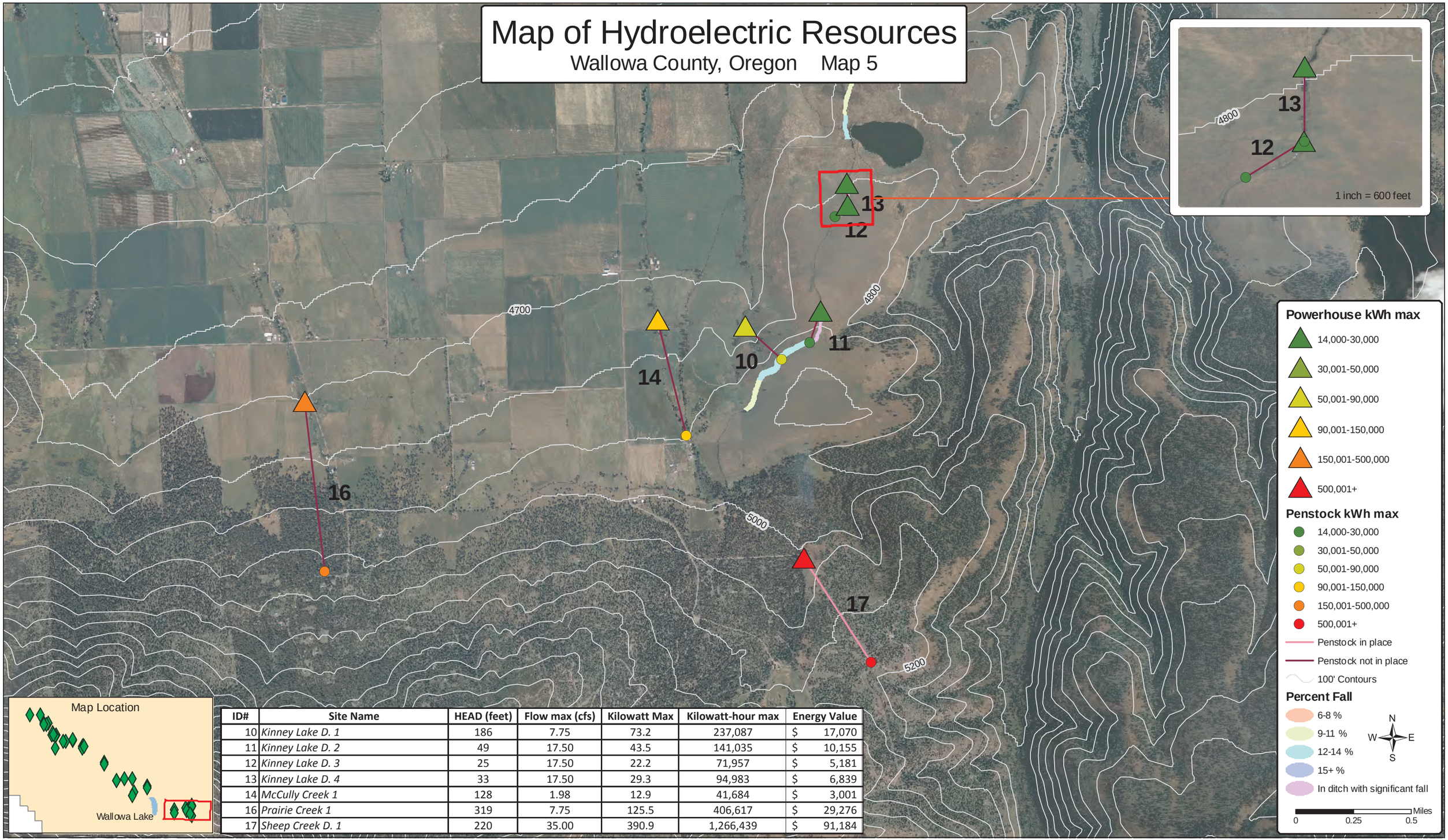
District Members							
Number	**Interest**	**Dev_pot'l**					
7	Medium						

Measuring and Recording Flow						
Flow_Meas	**Flow_data**	**Water_recharge**				
Automatically	Is Available	No				

Site Notes
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.

Map of Hydroelectric Resources

Wallowa County, Oregon Map 5



ID#	Site Name	HEAD (feet)	Flow max (cfs)	Kilowatt Max	Kilowatt-hour max	Energy Value
10	*Kinney Lake D. 1*	186	7.75	73.2	237,087	$ 17,070
11	*Kinney Lake D. 2*	49	17.50	43.5	141,035	$ 10,155
12	*Kinney Lake D. 3*	25	17.50	22.2	71,957	$ 5,181
13	*Kinney Lake D. 4*	33	17.50	29.3	94,983	$ 6,839
14	*McCully Creek 1*	128	1.98	12.9	41,684	$ 3,001
16	*Prairie Creek 1*	319	7.75	125.5	406,617	$ 29,276
17	*Sheep Creek D. 1*	220	35.00	390.9	1,266,439	$ 91,184

Kinney Lake D.1

Site & Contact

Site Name	**Kinney Lake D. 1**
Ditch Name	**Kinney Lake Ditch/ Big Sheep Ditch**
Ditch Company	**Wallowa Valley Improvement Association**
Contact Phone d/m	**Scott Shear, 541 263 0609**

Site Location

Powerhouse		**Penstock**	
Latitude	45.18216N	Latitude	45.18097N
Longitude	117.06854W	Longitude	117.06680W

Resource Details

Water Right no.	2949	Return Flow McCully Creek → Prairie Creek	
Head (feet)	186	Pipe Diameter/inches	16
		Pipe In Place? ☐ Yes ☒ No Notes -	
Flow Max (cfs)	7.75	Flow Min (cfs) 0.66	
kWh Max	237,087	kWh Min	20,088
kW Max	73.2	Distance to Transmission	1600
Annual Revenue Max	$17,070	Pipe Length (feet) 1,108	

Project Costs

Pipeline Costs	$17,296
Powerhouse Costs	$17,000
Turbine / Gen Set Costs	$140,000
Install Costs	$72,001
Permitting Costs	$12,700
Feasibility & Engineering	$26,000
Interconnection	$127,800
TOTAL COST	$407,796

Notes –

Two houses eligible for net metering via same rate schedule and same property owner, adjacent properties. Together, the properties use $2,000 electricity per month in summer to pump, $1,000 electricity in winter. It is not clear whether farm or domestic electric use would be net metered.

Water right for this project is determined based on irrigated acreage and duty rate. This parcel has a duty of 1/80 cfs per acre. Shear irrigates 620 acres off of Kinney Lake Ditch, which equals 7.75 cfs.

Site: KINNEY LAKE D.1

Kinney Lake D.2

Site & Contact

Site Name	**Kinney Lake D. 2**
Ditch Name	**Kinney Lake Ditch/ Big Sheep Ditch**
Ditch Company	**Wallowa Valley Improvement Association**
Contact Phone d/m	**Scott Shear, 541 263 0609**

Site Location

Powerhouse		**Penstock**	
Latitude	45.18144N	Latitude	45.18260N
Longitude	117.06514W	Longitude	117.06448W

Resource Details

Water Right no.	T5653	Return Flow	Kinney Lake Ditch
Head (feet)	49	Pipe Diameter/inches	31
		Pipe In Place? ☐ Yes ☒ No	
Flow Max (cfs)	17.5	Flow Min (cfs)	2.49
kWh Max	141,035	kWh Min	20,000
kW Max	43.5	Distance to Interconnection	3338
Annual Revenue Max	$10,155	Pipe Length (feet)	800

Project Costs

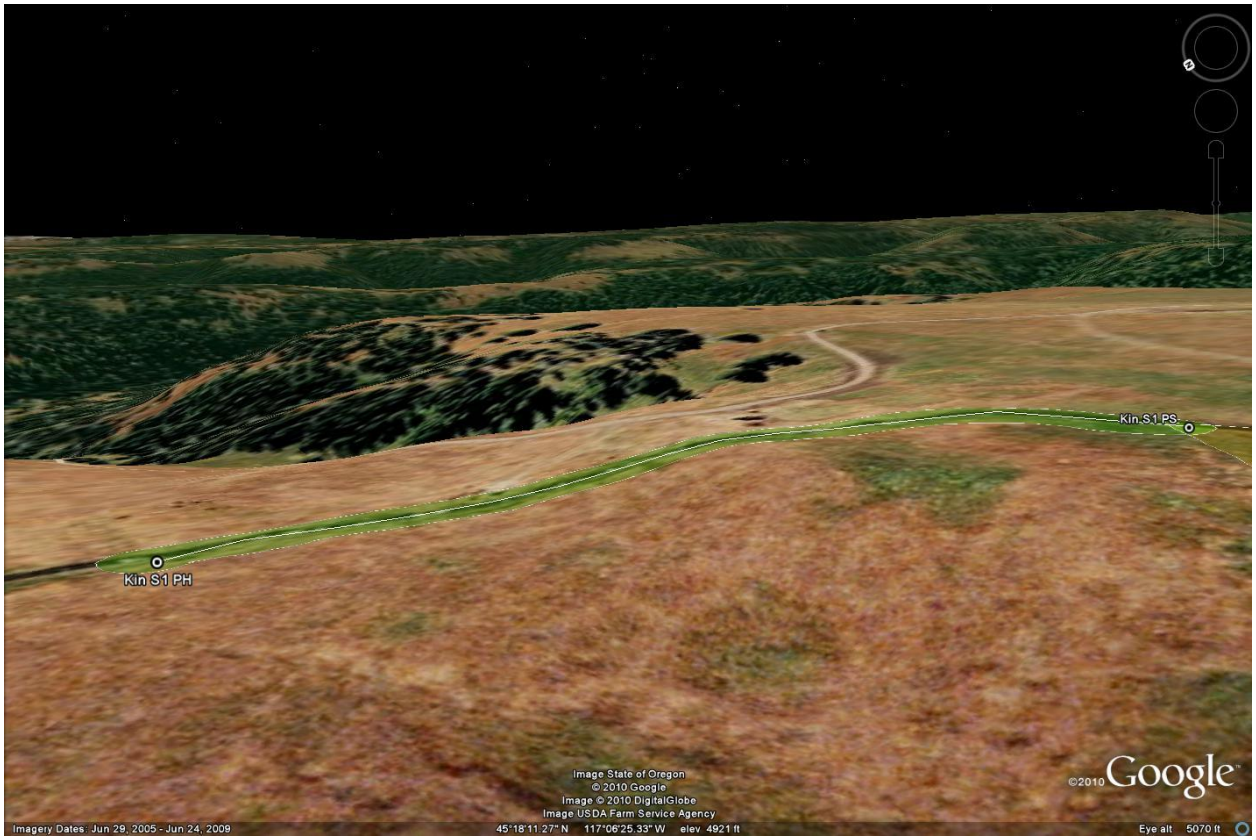
Pipeline Costs	$7,753
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$165,000
Install Costs	$73,787
Permitting Costs	$12,700
Feasibility & Engineering	$26,000
Interconnection	$185,154
TOTAL COST	$541,977

Notes –
Flow here is 50% of minimum flow confirmed at Sheep Creek Powerhouse.

This is an estimate. The diversion water right is much higher than this number. Subsequent feasibility would need to conduct flow measurements throughout the irrigation season and compare flow variability to historic flow records.

There is a fork in big sheep ditch just above these Kinney Lake segments.

Site: KINNEY LAKE D.2



Kinney Lake D.3

Site & Contact

Site Name	**Kinney Lake D. 3**
Ditch Name	**Kinney Lake Ditch/ Big Sheep Ditch**
Ditch Company	**Wallowa Valley Improvement Association**
Contact Phone d/m	**Scott Shear, 541 263 0609**

Site Location

Powerhouse		**Penstock**	
Latitude	45.18614N	Latitude	45.18655N
Longitude	117.06348W	Longitude	117.06282W

Resource Details

Water Right no.	T5653	Return Flow	Prairie Creek
Head (feet)	25	Pipe Diameter/inches	31
		Pipe In Place? ☐ Yes ☒ No	
Flow Max (cfs)	17.5	Flow Min (cfs)	4.89
kWh Max	71,957	kWh Min	20,000
kW Max	22.2	Distance to Transmission	4429
Annual Revenue Max	$5,181	Pipe Length (feet)	400

Project Costs

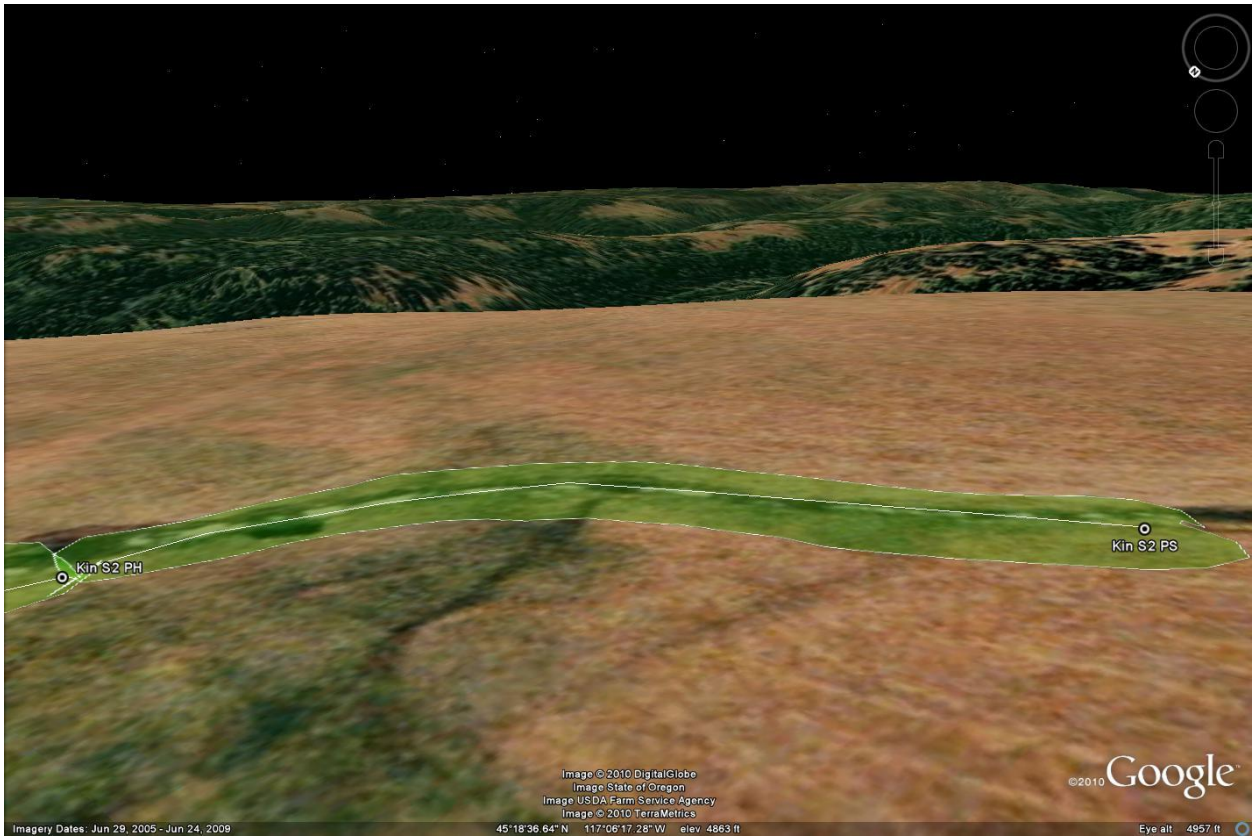
Pipeline Costs	$3,924
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$185,000
Install Costs	$63,769
Permitting Costs	$12,700
Feasibility & Engineering	$26,000
Interconnection	$146,229
TOTAL COST	$477,367

Notes –
Flow here is 50% of minimum flow confirmed at Sheep Creek Powerhouse.

This is an estimate. The diversion water right is much higher than this number. Subsequent feasibility would need to conduct flow measurements throughout the irrigation season and compare flow variability to historic flow records.

There is a fork in big sheep ditch just above these Kinney Lake segments.

Site: KINNEY LAKE D.3



Kinney Lake D.4

Site & Contact

Site Name	**Kinney Lake D. 4**
Ditch Name	**Kinney Lake Ditch / Big Sheep Ditch**
Ditch Company	**Wallowa Valley Improvement Association**
Contact Phone d/m	**Scott Shear, 541 263 0609**

Site Location

Powerhouse		**Penstock**	
Latitude	45.1865N	Latitude	45.18739N
Longitude	117.06282W	Longitude	117.06281W

Resource Details

Water Right no.		Return Flow Prairie Creek	
Head (feet)	33	Pipe Diameter/inches	31
		Pipe In Place? ☐ Yes ☒ No Notes -	
Flow Max (cfs)	17.5	Flow Min (cfs) 3.70	
kWh Max	94,983	kWh Min	20,000
kW Max	29.3	Distance to Transmission	5101
Annual Revenue Max	$6,839	Pipe Length (feet) 515	

Project Costs

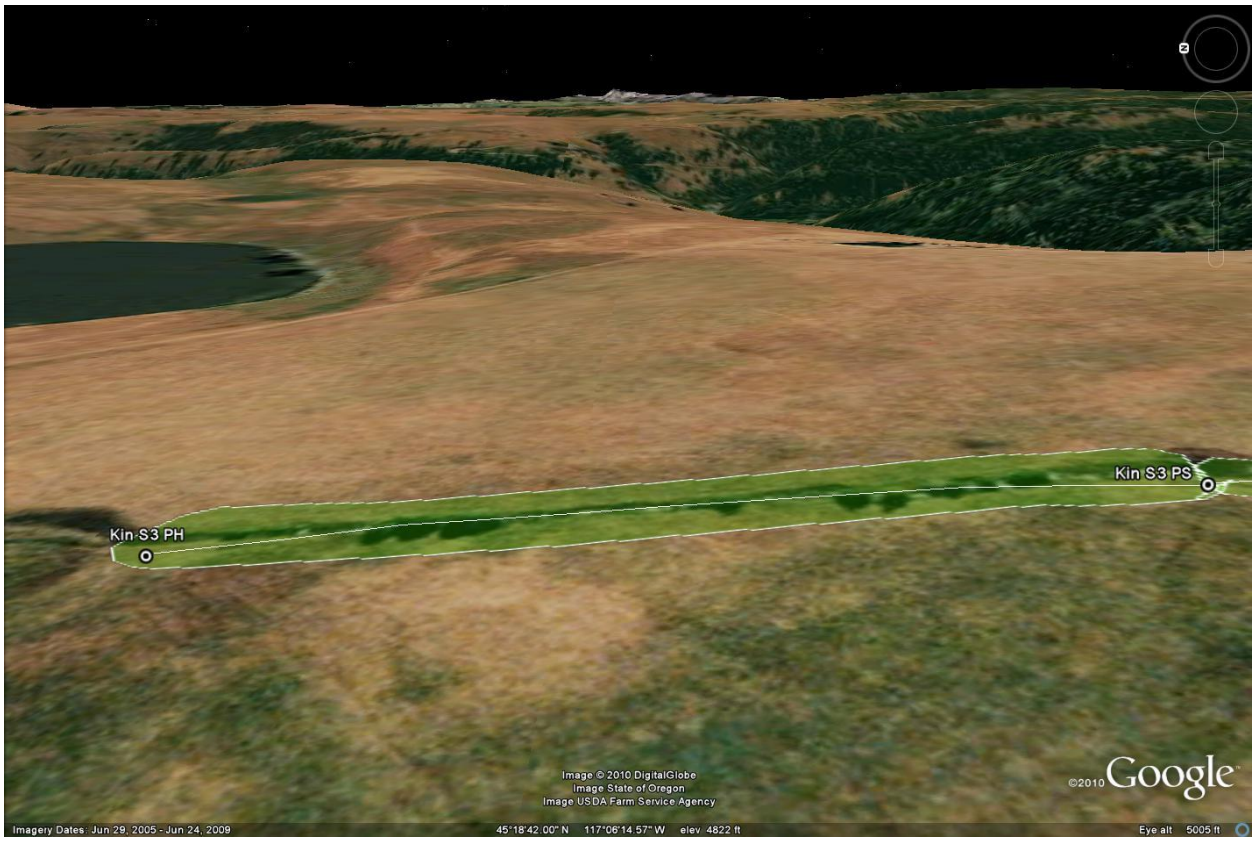
Pipeline Costs	$45,928
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$175,000
Install Costs	$81,748
Permitting Costs	$12,700
Feasibility & Engineering	$26,000
Interconnection	$213,333
TOTAL COST	$562,709

Notes –
Flow here is 50% of minimum flow confirmed at Sheep Creek Powerhouse.

This is an estimate. The diversion water right is much higher than this number. Subsequent feasibility would need to conduct flow measurements throughout the irrigation season and compare flow variability to historic flow records taken by the ditch company.

There is a fork in big sheep ditch just above these Kinney Lake segments.

Site: KINNEY LAKE D.4



McCully Creek 1

Site & Contact

Site Name	**McCully Creek 1**
Ditch Name	**McCully Creek**
Ditch Company	**n/a – unmaintained irrigation district**
Contact Phone d/m	**Scott Shear, 541 263 0609**

Site Location

Powerhouse		**Penstock**	
Latitude	45.18255N	Latitude	45.17814N
Longitude	117.07317W	Longitude	117.07192W

Resource Details

Water Right no.	2163	Return Flow McCully Creek	
Head (feet)	128	Pipe Diameter/inches	12
		Pipe In Place? ☐ Yes ☒ No Notes -	
Flow Max (cfs)	1.98	Flow Min (cfs) 0.40	
kWh Max	41,684	kWh Min	20,217
kW Max	12.9	Distance to Transmission	60
Annual Revenue Max	$3,001	Pipe Length (feet) 2,722	

Project Costs

Pipeline Costs	$41,456
Powerhouse Costs	$13,000
Turbine / Gen Set Costs	$70,000
Install Costs	$47,753
Permitting Costs	$12,700
Feasibility & Engineering	$21,600
Interconnection	$2,043
TOTAL COST	$203,552

Notes –
Two houses eligible for net metering via same rate schedule and same property owner, adjacent properties. Together, the properties use $2,000 electricity per month in summer to pump, $1,000 electricity in winter. It is not clear whether farm or domestic electric use would be net metered.

Cfs = 1.98, per water right 2163.

Site: McCULLY CREEK

Site Name: Prairie Creek 1

Site & Contact

Site Name	**Prairie Creek 1**
Ditch Name	**Prairie Creek**
Ditch Company	**n/a**
Contact Phone d/m	**John Gorsline, 541 432 1111**

Site Location

Powerhouse		**Penstock**	
Latitude	45.18004N	Latitude	45.17361N
Longitude	117.09215W	Longitude	117.09144W

Resource Details

Water Right no.	3109	Return Flow Prairie Creek	
Head (feet)	319	Pipe Diameter/inches	16
		Pipe In Place? ☐ Yes ☒ No Notes -	
Flow Max (cfs)	7.75	Flow Min (cfs) 0.16	
kWh Max	406,617	kWh Min	20,000
kW Max	125.5	Distance to Transmission	150
Annual Revenue Max	$29,276	Pipe Length (feet) 3,919	

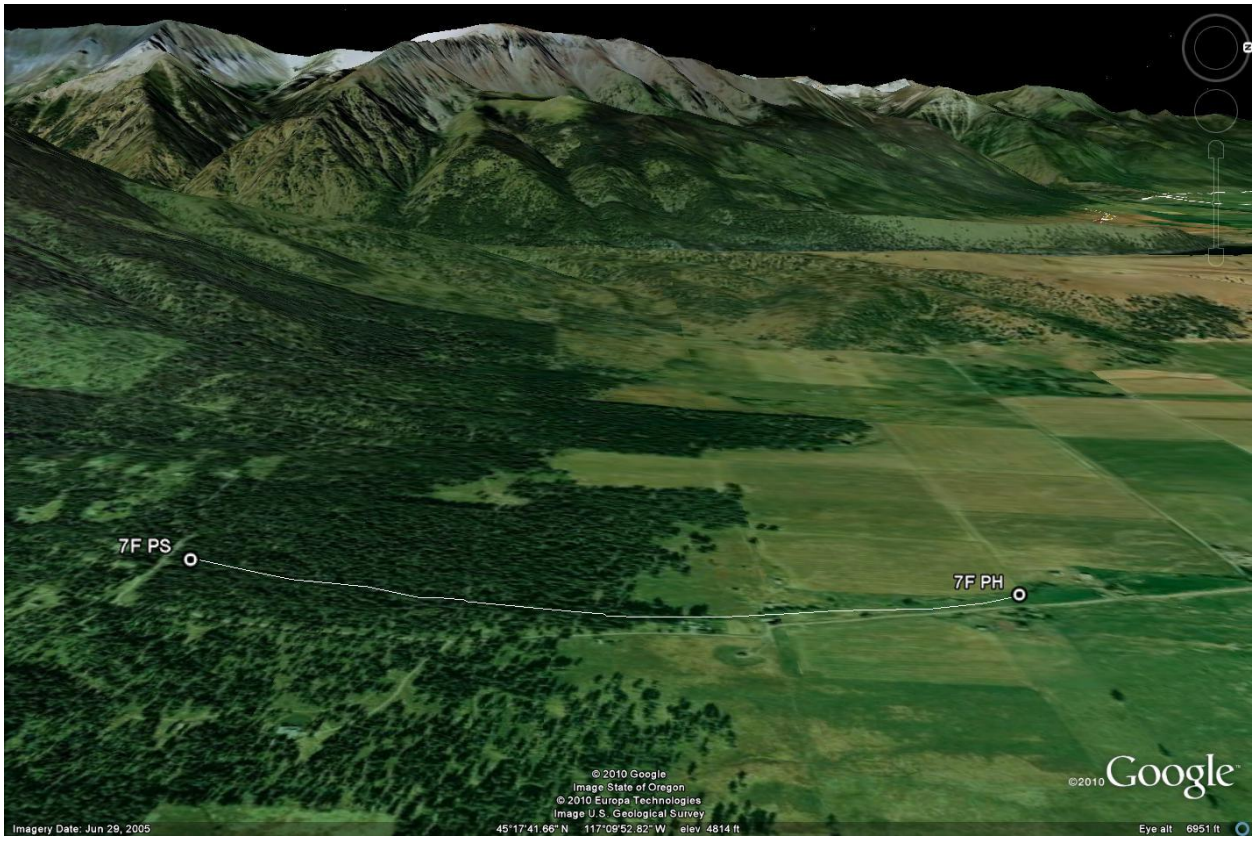
Project Costs

Pipeline Costs	$61,176
Powerhouse Costs	$25,000
Turbine / Gen Set Costs	$275,000
Install Costs	$93,296
Permitting Costs	$12,700
Feasibility & Engineering	$21,600
Interconnection	$79,950
TOTAL COST	$563,722

Notes –

Existing water right from 1880 for power generation.

Site: PRAIRIE CREEK 1



Sheep Creek D.1

Site & Contact

Site Name	**Sheep Creek D.1**
Ditch Name	**Sheep Creek Ditch**
Ditch Company	**Wallowa Valley Improvement Association**
Contact Phone d/m	**Larry Aschenbrenner, 541 426 2039**

Site Location

Powerhouse		**Penstock**	
Latitude	45.172045N	Latitude	45.16921N
Longitude	117.063549W	Longitude	117.06258W

Resource Details

Water Right no.	3890, 9391	Return Flow Chamberlain Ditch	
Head (feet)	220	Pipe Diameter/inches	34”
Pipe In Place? ☒ Yes ☐ No Notes - This is an existing penstock with an existing powerhouse building in place.			
Flow Max (cfs)	35.00	Flow Min (cfs)	0.56
kWh Max	1,266,439	kWh Min	20,000
kW Max	390.9	Distance to transmission	30
Annual Revenue Max	$91,184	Pipe Length (feet)	2,881

Project Costs

Pipeline Costs	n/a
Powerhouse Costs	n/a
Turbine / Gen Set Costs	$1,065,000
Install Costs	$45,293
Permitting Costs	$12,700
Feasibility & Engineering	$37,000
Interconnection	$90,990
TOTAL COST	$1,245,983

Notes –

This is an existing penstock and powerhouse that was previously de-commissioned. None of the previous system still exists in the powerhouse and the penstock has had a lid placed on it since it’s decommission.

Site: SHEEP CREEK D.1

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Unlined	Open Canal	1-May	30-Sept				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem_Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						
District Members							
Number	**Interest**	**Dev_pot'l**					
Unknown	Medium						
Measuring and Recording Flow							
Flow_Meas	**Flow_data**	**Water_recharge**					
Isn't Measured	Is Not Available	No, water moved from Snake River Watershed to Grande Ronde Watershed.					
Site Notes							
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.							

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Unlined	Open Canal	1-May	30-Sept				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
Some members pump here	Yes, on the West side of the ridge.	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem. Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A							
District Members							
Number	**Interest**	**Dev-pot'l**					
Unknown	Medium						
Measuring and Recording Flow							
Flow_Meas	**Flow_data**	**Water_recharge**					
Isn't Measured	Is Not Available	No, water moved from Snake River Watershed to Grande Ronde Watershed.					
Site Notes							
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.							

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Unlined	Open Canal	1-May	30-Sept				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
Some Members Pump Here	Yes, on the West side of the ridge.	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem. Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						
District Members							
Number	**Interest**	**Dev_pot'l**					
Unknown	Medium						
Measuring and Recording Flow							
Flow_Meas	**Flow_data**	**Water_recharge**					
Isn't Measured	Is Not Available	No, water moved from Snake River Watershed to Grande Ronde Watershed.					
Site Notes							
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.							

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Unlined	Open Canal	1-May	30-Sept				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press. Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
Some Members Pump Here	Yes, on the West side of the ridge.	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem_Pumps**	**Annual Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	No						
District Members							
Number	**Interest**	**Dev_pot'l**					
Unknown	Medium						
Measuring and Recording Flow							
Flow_Meas	**Flow_data**	**Water_recharge**					
Isn't Measured	Is Not Available	No, water moved from Snake River Watershed to the Grande Ronde Watershed.					
Site Notes							
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.							

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Unlined	Open Canal	1-Jan	31-Dec				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
Yes, Triple Creek Ranch Pumps Here	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem. Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	Yes						
District Members							
Number	**Interest**	**Dev_pot'l**					
Unknown	Medium						
Measuring and Recording Flow							
Flow_Meas	**Flow_data**	**Water_recharge**					
Isn't Measured	Is Not Available	Yes					
Site Notes							
Due to the current operating configuration of McCully Creek, some of the Energy and Water Use Efficiency questions are Not Applicable.							

Conveyance Information

Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Unlined	Open Stream	1-Jan	31-Dec				
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No, gravity fed system	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem_Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	Yes						
District Members							
Number	**Interest**	**Dev_pot'l**					
1	Medium						
Measuring and Recording Flow							
Flow_Meas	**Flow_data**	**Water_recharge**					
Isn't Measured	Is Not Available	Yes					
Site Notes							
Due to the current operating configuration of Prairie Creek, some of the Energy and Water Use Efficiency questions are Not Applicable .							

Conveyance Information

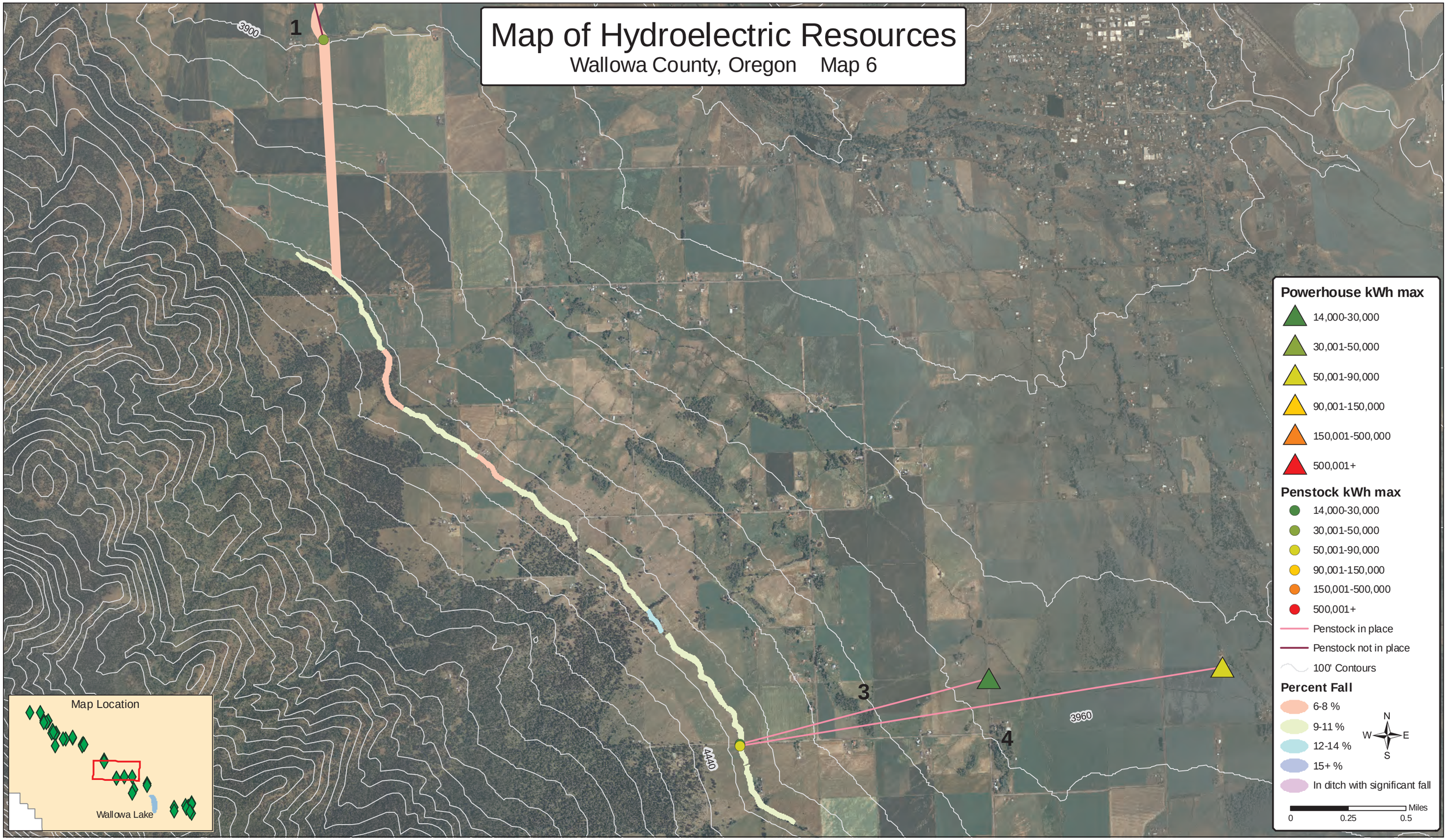
Method of Conveyance							
Mthd_Conv	**Proj_Typ**	**Start Date**	**End Date**				
Unlined	Redevelopment of existing project	1-May	30-Sept				

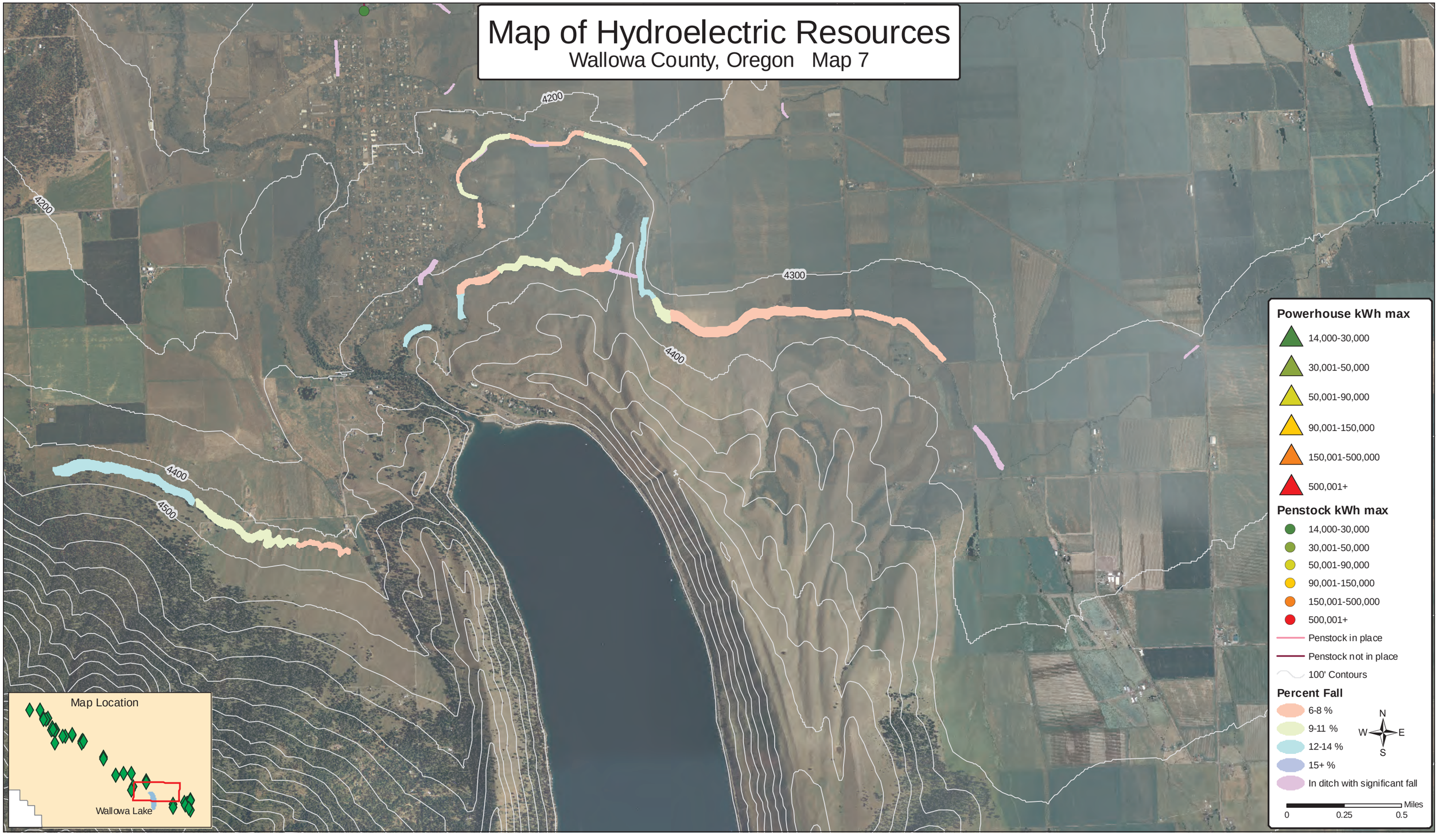
Energy and Water Use Efficiency							
Open_Cnls	**Grav_Fed**	**Press_Reqs**	**Thttle/Byp**	**Ineff**	**Auto_Seq**	**Vari_Spd**	**Yrs_DPump**
No current irrigation at this point	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pac_Pwr	**Mem. Pumps**	**Annual_Use**	**Elec_Meas**	**% High Pres**	**% Low Pres**	**% Flood**	**Leak_Lat**
Yes	No	N/A	Their Own	N/A	N/A	N/A	N/A
Leak_Long	**Fmrs_Scrn**						
N/A	Yes						

District Members							
Number	**Interest**	**Dev_pot'l**					
Unknown	High	High					

Flow Information						
Flow_Meas	**Flow_data**	**Water-recharge**				
Automatic	Is Available	No. Water is diverted away from Big Sheep Creek and the Snake River Watershed and recharges Prairie Creek and the Grande Ronde Watershed				

Site Notes
Due to the current operating configuration of the ditch company, some of the Energy and Water Use Efficiency questions are Not Applicable to their situation.


Map of Hydroelectric Resources
Wallowa County, Oregon Map 6
1
3
4
3900
3960
4440
Map Location
Wallowa Lake
Powerhouse kWh max
14,000-30,000
30,001-50,000
50,001-90,000
90,001-150,000
150,001-500,000
500,001+
Penstock kWh max
14,000-30,000
30,001-50,000
50,001-90,000
90,001-150,000
150,001-500,000
500,001+
Penstock in place
Penstock not in place
100' Contours
Percent Fall
6-8 %
9-11 %
12-14 %
15+ %
In ditch with significant fall
N
W
E
S
Miles
0
0.25
0.5

Map of Hydroelectric Resources

Wallowa County, Oregon Map 7