



OREGON DEPARTMENT OF FISH AND WILDLIFE

Fish Passage WAIVER Application

- Use this form if providing fish passage at the artificial obstruction for which a Waiver is being requested would benefit native migratory fish.
- Use the "Fish Passage EXEMPTION Application" if a waiver has already been granted for the artificial obstruction, fish passage mitigation has already been provided for the artificial obstruction, or if there would be no appreciable benefit for native migratory fish if passage were provided at the artificial obstruction.
- If you unlock and re-lock this Form, information already entered may be lost in certain versions of MS Word.

APPLICANT INFORMATION

The Applicant must be the owner or operator of the artificial obstruction for which a Waiver is sought.

ORGANIZATION/APPLICANT: Baker County
CONTACT: Fred Warner Jr. **TITLE:** Commissioner
ADDRESS: 1995 Third Street
CITY: Baker City **STATE:** OR **ZIP:** 97814
PHONE: 541.523.8200
FAX: 541.523.8201
E-MAIL ADDRESS: fwarner@bakercounty.org

SIGNATURE: *Fred Warner Jr.* **DATE:** 11/6/13

OWNER (if different than Applicant):

CONTACT: **TITLE:**
ADDRESS:
CITY: **STATE:** **ZIP:**
PHONE:
FAX:
E-MAIL ADDRESS:

SIGNATURE: _____ **DATE:** _____
Signature indicates that you understand and do not dispute this request.

APPLICATION COMPLETED BY (if different than Applicant): Jason Yencopal

TITLE:
ORGANIZATION: Baker County
ADDRESS: 1995 Third Street
CITY: Baker City **STATE:** OR **ZIP:** 97814
PHONE: 541.523.9669
FAX: 541.523.8201
E-MAIL ADDRESS: jyencopal@bakercounty.org

SIGNATURE: *Jason Yencopal* **DATE:** 11/6/13

To Be Completed by ODFW Fish Passage Coordinator

APPLICATION #:

DATE RECEIVED:

FILE NAME:

APPROVED

SIGNATURE: _____ **DATE:** _____

DENIED

TITLE:

ARTIFICIAL OBSTRUCTION (for which a Waiver is being requested)

- 1. TYPE OF ARTIFICIAL OBSTRUCTION:**
- | | | | |
|-------------------------------------|-------------------|----------|-------------------------------------|
| <input checked="" type="checkbox"/> | Dam | New | <input type="checkbox"/> |
| <input type="checkbox"/> | Culvert/Bridge | Existing | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | Tidegate | | |
| <input type="checkbox"/> | Other (describe): | | |

2. PLEASE PROVIDE A BACKGROUND AND DESCRIPTION OF THE PROPOSED ACTION TRIGGERING THE NEED TO ADDRESS FISH PASSAGE:

Baker County is proposing to add a hydroelectric turbine at the base of the existing Mason Dam through the Integrated Licensing Process (ILP) with the Federal Energy Regulatory Commission (FERC). Mason Dam is an existing dam built and owned by the Bureau of Reclamation (BOR) on the Powder River in Baker County. It was constructed between 1965-1968 and is operated by the Baker Valley Irrigation District (BVID) for flood control and irrigation purposes. The Mason Dam Hydroelectric Project will be operated as “run-of-release” and will not change the existing dam operation. Although there will be no change in operation, the hydroelectric project will require a non consumptive water right that constitutes a change in permit status, which triggers the State of Oregon’s fish passage review. The Mason Dam Hydroelectric Project would only operate whenever water releases by BVID or BOR exceed 100cfs. The project is expected to operate 4 – 6 months out of the year. The existing intake, piping system and outlet civil-works will remain in place. The project will bifurcate the existing main 56inch pipe near the existing outlet works, construct a new outlet and add a hydroelectric project with all the necessary facilities and components.

3. PASSAGE WILL NOT BE PROVIDED FOR THE FOLLOWING REASON(S): Passage is not being considered at Mason Dam for the following four reasons.

- 1.) The owner of the facility, the Bureau of Reclamation, has stated that the project licensee is responsible for all fish and wildlife impacts over and above the baseline historical environmental impacts. Under this policy, it is not Reclamation's responsibility to provide fish passage at Mason Dam.
- 2.) Passage would provide limited benefits to native migratory fish due to the overall degraded watershed condition and presence of other barriers to full fish access. Mason Dam is located at the base of the HUC 5 Upper Powder River watershed (HUC # 1705020301) along the Powder River at mile131, as depicted in the map figures 1-3. Phillips Reservoir was created in 1968 behind the dam. The Powder River above Phillips Reservoir has been extensively mined and dredge tailings dominate the river and adjacent floodplain for 9.5 miles upstream of the reservoir. The tailings were created by a large bucketline dredger and are up to 0.75 miles wide. The material that historically formed the river floodplain is now aligned in barren rows of cobbles interspersed with small ponds generally isolated from the river surface flow. The remainder of the watershed, including almost all of the Powder River tributaries, was also altered by a combination of placer and bucketline gold mining. The mining activities have straightened and steepened streams and resulted in loss of floodplain connectivity. Erosion of fine materials associated with the mining activity has resulted in the degradation of pool and

spawning habitats, with a generally high proportion of channel bed/substrate embeddness noted throughout the watershed (PBWC 2001).

The overall HUC 5 watershed upstream of the dam has been characterized as “functioning at unacceptable risk” for native salmonids (PBWC 2001), with the key limiting factors being high temperature, low dissolved oxygen (DO), in-stream sedimentation, poor substrate and streambank conditions, lack of off-channel habitat, and lack of adequate pool quality and quantity. Habitat in the Powder River below Mason Dam (within the Powder River/Powder Valley HUC5 watershed) has been characterized as “fair to poor” for salmonids immediately below the dam (ECW 2011), “good” for the next 2.8 miles and then “fair to poor” below that (Bailey 2013).

Although there have been other stream habitat impacts, historic gold mining is recognized as a main factor in the degradation of fish habitat (PBWC 2001). Gold mining was initiated in 1862 and continued on a large scale up until the 1950s. Irrigation diversions have also affected fish habitat. Ten years prior to Mason Dam construction, the Oregon Fish Commission (ODFW predecessor) conducted field surveys of the upper Powder River (summarized in Thompson et al. 1960). At that time, the Oregon Fish Commission identified that fish conditions in the entire Powder River Basin were poor as a result of excessive siltation in the streambed, a high degree of bank erosion, and the general dewatered nature of the river (Thompson et al. 1960). The State Fish Commission further recommended that Mason Dam be constructed to improve stream conditions and petitioned the US Congress in support of the Mason Dam project as the only hope to restore a severely degraded fishery. At the time of the State of Oregon report and the Mason Dam construction, the Powder River was dewatered both 2 miles upstream of the current dam site and below it near the current Shaw-Smith ditch site (which at present day has been made into two diversions named the Shaw-Stewart and the Smith Ditch).

The mainstem Powder River both above and below Mason Dam and the associated Phillips Reservoir are 303(d) listed for temperature. Other parameters of concern include heavy metals, sediments, ammonia, phosphorus, e-coli and fecal coliform.

Watershed barriers are discussed in section 6A.

- 3.) The non-native yellow perch overwhelmingly dominates the reservoir behind Mason Dam (Phillips Reservoir). ODFW, Baker County and other partners have invested substantial time and funds to control the yellow perch and other non-native species. Historical treatment in the area has included three rounds of chemical treatment of up to 134 miles of the Powder River and its tributaries as well as Phillips Reservoir, ongoing netting and removal of yellow perch and introduction of non-native predators such as the tiger trout and tiger muskie into the reservoir (PBWC 2001, Bailey 2013). Shrader (2000) and Bailey (2013) have documented

the severe effects of the yellow perch on both native and game fish through food source competition, and the resultant serious decline in other species. According to Bailey (2013), it is uncertain at this time if the on-going and proposed management actions to control yellow perch abundance will be successful. The fishery downstream of Mason Dam is already degraded by high temperatures and sedimentation. Until the yellow perch are controlled and the effects of the non-native fish introduced are fully understood, full fish passage between the reservoir and the downstream Powder River could further degrade the existing river fishery.

4.) Baker County believes the benefit from the proposed mitigation will be more beneficial to the Powder River fishery resources than providing passage at the existing Mason Dam as there is a limited amount of high quality habitat in the watershed and the mitigation would remove barriers preventing full native fish access to these high quality areas.

4. DATE THE TRIGGER ACTION IS SCHEDULED TO BEGIN (*a minimum of two months should be planned for the waiver process after ODFW receives your application; requests that must go before the Commission will take longer*):

Construction of the Mason Dam hydroelectric project is dependent upon the FERC license application approval. Under the current timeline the issue of the license is expected to occur in March of 2014.

5. LOCATION

COUNTY:	Baker County
ROAD CROSSING (if applicable):	Black Mountain Road
RIVER/STREAM:	Powder River
TRIBUTARY OF:	Snake River
BASIN:	Powder Basin
COORDINATES^a:	Longitude: -117.999°W Latitude: 44.673°N

^a Geographic projection using NAD_83 and formatted as decimal degrees to at least 4 places.

6. STREAM DESCRIPTION

6A. BARRIER TABLE (*please provide the following information for barriers, which will help determine the benefit of providing passage at the Artificial Obstruction; indicate measurement units if applicable*):

The Powder River is formed by the junction of McCully Fork and Cracker Creeks. The tributaries of these two creeks above this junction form the upper Powder River watershed. There are a total of 127.7 miles of perennial fish-bearing streams in the upper Powder River watershed (PBWC 2001), not all of which contain or are accessible to native migratory fish. ODFW (2013a) has estimated that 65.5 of the miles were historically available to native fish, although Thompson et al. (1960) have indicated it was lower than that, with only 2 to 3 miles of habitat available upstream of the current Mason Dam location in 1958 (prior to the construction of Mason Dam).

Of the current total 127.7 fish-bearing stream miles, most are either water-quality limited, contain habitat functioning at risk for native fish, or are not accessible to native fish. There are

also more than 22 irrigation diversions, most of which are unscreened, and more than 25 culverts that affect, partially or fully block fish passage upstream of Mason Dam. Of these culverts, 10 are located along State highways and County roads and at least 15 are on land managed either by the USFS or private landowners.

Of the perennial fish-bearing streams in the watershed, most segments are either 303(d) listed or otherwise noted as exceeding water quality standards for native fish, leaving only 34 miles of perennial fish bearing streams lacking water quality issues: Union Creek, Upper Deer Creek and McCully Fork (PBWC 2001). A combination of culverts and irrigation diversions block these stream sections from direct access to Phillips Reservoir.

- Access to 5.6 miles of McCully Fork is blocked by an 88-foot long, 10-foot wide by 6-foot high cement box culvert with a 2.2-foot drop into a 12 inch-deep pool. The culvert was originally installed by the state prior to an ownership change that transferred it to the County. The culvert is approximately 2.3 miles outside of the town of Sumpter heading towards Granite. ODFW has identified the McCully Fork culvert as a complete fish barrier (level 5) and one of its top priorities for replacement in Baker County (ODFW 2013b). The McCully Fork culvert is listed as the first upstream barrier in the table below. The McCully Fork habitat is rated as “good” by ODFW and “functioning appropriately” by the USFS for physical habitats conditions such as streambank condition and floodplain connectivity. Additionally, the USFS noted that because McCully Fork provides municipal water for the city of Sumpter, “watershed and riparian health is generally rated as excellent, with high quality water”. McCully Fork is the only stream habitat in the upper Powder River watershed that both lacks water quality issues and is rated as providing functioning salmonid habitat. McCully Fork is completely blocked from the Powder River and other Powder River tributaries.
- Access to Union Creek above Mason Dam is restricted by a 120-ft long, 48-inch diameter CMP (corrugated metal pipe) with a 24" inch drop below the pipe into a steep stream (6% above, 3 to 6% below) with no pool below. The culvert barrier rating was not identified on the ODFW barrier spreadsheet (ODFW 2013b), but given the degree of drop, the culvert likely presents a full barrier to most if not all native migratory fish (rating of 4 to 5) to 6.0 miles of stream habitat. The habitat has not been identified as water quality limited, but its overall condition is rated is fair by ODFW for redband trout. This culvert is located within a State of Oregon Department of Transportation highway right-of-way and is barrier #2 in the table below.
- 10.8 miles of high quality habitat in Upper Deer Creek is partially blocked by a series of culverts and unscreened irrigation diversions on both USFS and private land.

The overall current status in the upper Powder River watershed (above Mason Dam) is that there are 127.7 miles of perennial, fish bearing streams, with 65.5 miles identified by ODFW (2013a) as historically suitable for native migratory fish, but only 2 to 3 miles identified in 1958. Of the total number of current fish-bearing stream miles (including both native and non native fish, 127.7), there are:

- 34 miles of fish-bearing streams lacking water quality issues (26.6% of the upper Powder River watershed)
- 16.4 miles of streams with habitat mapped as functioning appropriately and lacking water quality issues (i.e., high quality habitat, 12.8% of the upper Powder River watershed), but with access to only 10.8 of those high quality habitat miles.

Below Mason Dam, the Shaw-Stewart completely blocks the Powder River. According to ODFW (2103a), no native migratory fish passage is provided downstream of this facility. This facility is located 10 miles downstream of Mason Dam and spans the entire length of the river. This barrier is listed in the downstream column 1 of the table below. Between Mason Dam and the Shaw-Stewart diversion there are 10 miles of native migratory fish stream habitat, of which 2.8 miles provide good quality habitat and 7.2 miles provide fair to poor habitat.

Locations	DOWNSTREAM				AO	UPSTREAM			example
	3	C/N	2	1		1	2	E	
Type				D, irrigation diversion	D	C	C		C
Length				40 feet, the entire river width	895 ft	88 ft	120 ft		80 ft
Distance				10 miles		13 miles	0.4 miles	75.5 miles pre- European but less than that (12-13 miles) prior to dam construction	1,200 ft
Level				5	5	5	5		5

Type = C (culvert/bridge), D (dam), T (tide gate), N (natural; *describe below*), O (other; *describe below*)
Length = length of the barrier in the stream (e.g., culvert's length, dam's width/footprint)
Distance = distance from the Artificial Obstruction (to closest point of other barriers)
Level = amount of passage at the barrier using the following codes:
5 - barrier to all native migratory fish
4 - barrier to some native migratory fish adults and/or species
3 - barrier to some native migratory fish adults and/or species for only part of migration period
2 - barrier to all native migratory fish juveniles
1 - barrier to some native migratory fish juveniles and/or for only part of migration period

LOCATIONS:
AO = the existing or proposed Artificial Obstruction
1,2 = other barriers in the same stream as the Artificial Obstruction
3 = downstream barrier outside the immediate stream in which the Artificial Obstruction is located (*only needed if C/N is a confluence rather than a complete natural barrier*)
E = end of historic native migratory fish use, including all tributaries (i.e., potential range without any artificial barriers in place)
C/N = first downstream confluence or complete natural barrier, whichever comes first

NOTE: The *example* indicates that there is culvert which is 80 feet long, is located 1,200 feet from the Artificial Obstruction in question, and is a complete fish passage barrier.

PLEASE PROVIDE ADDITIONAL DESCRIPTIONS FOR THOSE BARRIERS INCLUDED IN THE BARRIER TABLE OR FOR OTHER BARRIERS AFFECTING NATIVE MIGRATORY FISH MOVEMENT TO OR FROM THE ARTIFICIAL OBSTRUCTION:

- Upstream 1: McCully Fork culvert on the main stem of the Powder River, see previous description and photo 2
- Upstream 2: Union Creek Culvert that empties into Phillips Reservoir, see photo 8
- Downstream 1: Shaw-Stewart Diversion –This diversion is used year round for stock water and irrigation. It has a maximum flow of 12cfs and minimum flow above 1cfs see photo 9

6B. SUMMARY TABLE (please provide the following information relative to the Artificial Obstruction, which will help determine the benefit of providing passage at it):

	DOWNSTREAM	UPSTREAM
NMF Species Present Currently	Red Band Trout, largescale and bridgelip suckers, northern pikeminnow	Red Band, Bull Trout, largescale and bridgelip suckers, northern pikeminnow
NMF Species Present Historically	Red Band, Bull Trout, largescale and bridgelip suckers, northern pikeminnow	Red Band, Bull Trout, largescale and bridgelip suckers, northern pikeminnow
Habitat Quality	Variable, but mostly fair to poor	Fair to poor and functioning at risk, except for 16.4 miles of habitat mapped as functioning appropriately
Flows	Min approx 10 cfs Max average 300CFS	Powder River mean daily min 3.48 cfs max 311cfs Deer Creek mean daily min 1.89cfs max 131cfs
Water Quality	303(d) listed	303(d) listed
Water Right Availability	Non consumptive use will be sought, project not affecting stream flows	NA
Land Use/Zoning	Wallowa Whitman National Forest Plan	Wallowa Whitman National Forest Plan
NMF = native migratory fish		

PLEASE PROVIDE ADDITIONAL DETAILS REGARDING THE INFORMATION PROVIDED IN THE SUMMARY TABLE (such as species listed under the state or federal ESA and descriptions of the stream channel and riparian habitat):

According to the ODFW database, there are two native salmonids in the Upper Powder River watershed, redband trout and bull trout. Other native fish include bridgelip and largescale suckers and the northern pikeminnow (ODFW 2013c). The distribution of the non-salmonid native migratory fish is not well known but thought to be similar to that of the redband trout (ODFW 2013a). Redband trout occupy most of the perennial tributaries within the Powder River watershed above Mason Dam, but their populations are depressed as result of poor habitat conditions (PBWC 2001). Barriers and unscreened irrigation diversions also limit the movement of fish within the watershed. No anadromous fish occupied the watershed at the time of the Mason Dam construction or for more than 30 years prior (Thompson et al. 1960, PBWC 2001).

The Columbia and Klamath River populations of the bull trout are listed by both the federal government and the State of Oregon as threatened. There are three local bull trout populations in

the watershed, (Silver, Little Cracker and Lake Creeks), with two subadults known from Philips Reservoir based on the lateral netting of yellow perch in the spring of 2012. Almost all of the known bull trout in the watershed (an estimated 885 adults, USFS 1999 and USFWS 2002) occur within an approximately 5 mile length of Silver Creek. The Silver Creek bull trout population extends from the headwaters to a point approximately 1.25 miles from the junction with Cracker Creek. Little Cracker Creek is also known to contain bull trout, with the known occurrences upstream of the junction with Cracker Creek. The bull trout within Little Cracker Creek and Silver Creeks are thought to form one local bull trout population, although the degree of movement between these areas is limited by the culvert near the base of Silver Creek (photo 3). The concentration of bull trout in a very small part of their critical habitat (upper Silver Creek), leaves the population vulnerable to adverse effects through local stochastic effects.

6C. PROVIDE THE SOURCE FOR INFORMATION CONTAINED IN THE BARRIER AND SUMMARY TABLES:

- Bailey, T. 2012. Philips Reservoir Perch Removal Project. 2011 Project Report: Summary of Actions 2009-2011. Oregon Department of Fish and Wildlife, La Grande, OR.
- Bailey, T. 2013. Philips Reservoir Draft Fishery Management Plan. Prepared by ODFW, LaGrande, Oregon.
- PBWC (Powder Basin Watershed Council). 2001. Upper Powder River Watershed Assessment. Prepared for the Oregon Watershed Enhancement Board in conjunction with USFWS, USFS, and ODFW.
- ODFW. 2013a. Communication from Elizabeth Osier-Moats during a July 9, 2013 agency coordination meeting.
- ODFW. 2013b. Fish Passage Barrier Database for Baker County. Provided electronically to Baker County on 9/13/2013 by Tim Bailey, ODFW Fish Biologist.
- ODFW. 2013c. ODFW Fish Passage Priority List. Available at <http://www.dfw.state.or.us/fish/passage/index.asp>.
- Thompson, R. N., J. B. Haas, M. D. Collins, R. A. Willis and R. E. Sams. 1960. Environmental survey report pertaining to salmon and steelhead in certain rivers of eastern Oregon and the Willamette River and its tributaries: Survey reports of eastern Oregon rivers. Fish Commission of Oregon, Research Division, Clackamas, OR.
- USFWS. 2002. Chapter 13, Hells Canyon Complex Recovery Unit, Oregon and Idaho. US Fish and Wildlife Service. 2002. Bull Trout (*Salvelinus confluentus*) Draft Recovery Plan. Portland, Oregon
- USFWS. 2008. Bull Trout (*Salvelinus confluentus*) 5-Year Review: Summary and Evaluation.
- USFS. 1999. Final Biological Assessment. Wallowa-Whitman National Forest, Baker Ranger District: Upper Powder River Watershed. Baker County, Oregon.
- USFS. 2002. Fish Passage Barrier Data. Provided by the Whitman Ranger District of the Wallowa-Whitman National Forest during an August 2008 meeting.
- USFS. 2013. Blue Mountain Forest Plan Revision: Priority and Key Watersheds. Available at <http://www.fs.usda.gov/main/wallowa-whitman/home>

MITIGATION (attach additional copies of this section if multiple mitigation sites are proposed)

1. DESCRIBE THE MITIGATION TO BE PROVIDED:

Mitigation provided in lieu of passage will involve measures developed collaboratively by ODFW, USF&W, ODEQ, USDA Forest Service, and Baker County as part of the mitigation for the FERC licensing process. At this time we have been working as a stakeholder group (meeting biweekly for 4 months) to determine the mitigation required for this project. The group has discussed culvert replacement or improvements to these areas as projects that would meet the mitigation needs in lieu of passage at Mason Dam. On August 20th, 2013 the stakeholder group conducted a field tour to verify fish passage barriers on culverts in the upper Powder Basin above Mason Dam. Table 1 provides the sites visited and their rankings by priority. The majority of the streams above Mason Dam have been identified as having poor water quality and/or habitat functioning at risk, with very little mapped high quality habitat, and the mitigation focused on either providing access to high quality stream reaches and/or addressing a listed species limiting factor.

Baker County proposes to 1) modify the existing box culvert on McCully Fork that passes under the Forest Service highway known as the Elkhorn Drive Scenic Byway to meet fish passage criteria 2) replace the culvert on Silver Creek at Forest Service Road 5540-030 spur. Both mitigation projects are located in the upper Powder River HUC 5 Watershed above Mason Dam, in the HUC 4 Powder River Basin, and in Baker County (see figures 2,3,4 and 5).

- McCully Fork culvert is classified as a level 5, complete barrier to native migratory fish by ODFW (2013b). The current drop from the bottom of the culvert to the water surface is approximately 2.2 feet. Baker County will develop a roughened channel for 50 feet below the culvert and install baffles and rock substraight within the culvert. This will provide a gradual slop downstream of the box culvert so it is fish accessible and break up the sheet velocity inside the culvert (see figure 3). This will open up 5.6 miles of high quality habitat. ODFW will provide design review and technical assistance to ensure fish passage design criteria are met.
- Silver Creek is one of only 3 locations in which the listed bull trout occurs in the upper Powder River watershed. It also contains the largest bull trout population in the watershed, along with redband trout and other native migratory fish. The native fish in Silver Creek are partially blocked from passage into other suitable habitat by an old, undersized culvert with a 6 – 12 inch drop which is classified as a level 3. The current culvert will be replaced with an open bottom arch culvert to meet fish passage requirements. The new culvert will be twelve feet wide and just over six feet tall (see photo 3 and figure 7). The new culvert will improve fish access to 5.2 miles of habitat that contains both known bull trout and red band trout populations and allow movement back and forth to other areas.

The proposed mitigation would provide access to 5.6 miles of identified high quality habitat in McCully Fork Creek. The mitigation would also provide access to 5.3 miles of habitat within Silver Creek. This would increase redband trout and sucker access within 10.9 miles of stream, including 5.6 miles of very high quality habitat.

Replacement of the Silver Creek culvert would allow bull trout to move freely at all seasons of the year between its main area of occupied habitat, other local populations and potential new habitat. This movement would substantially reduce the Silver Creek bull trout population's vulnerability to stochastic loss. Additionally, one of the primary bull trout recovery goals is to maintain existing bull trout populations and expand local populations into potential spawning and rearing habitat. Elimination of the fish passage barrier at the base of Silver Creek would allow the bull trout population to access other watershed areas and allow the full connection of the Silver Creek and Little Cracker Creek populations. The additional barrier elimination at McCully Fork would allow potential expansion into one of the highest quality aquatic habitats in the watershed. Overall, the two mitigation projects would increase bull trout movement within 5.3 miles of occupied habitat, allow access to 7.6 miles of occupied or potential Cracker Creek habitat, and allow potential expansion into 5.6 miles of the McCully Fork high quality habitat area, for a total bull trout benefit of 18.5 miles.

2. DISTANCE BETWEEN MITIGATION SITE(S) AND ARTIFICIAL OBSTRUCTION: McCully Forks 13 miles, Silver Creek approximately 16 miles (known bull trout population)

3. OWNER (if different than Applicant):

4. DATE THE MITIGATION IS SCHEDULED TO BE COMPLETED: Within 2 years after the license has been issued either late 2015 or in 2016. This would coincide with the construction schedule where the mitigation will be completed by the end of the same in-water work period.

5. LOCATION

COUNTY:	Baker County	Baker County
ROAD CROSSING (if applicable):	Elkhorn Scenic Byway	030 spur off of the FS 5540 road
RIVER/STREAM:	McCully Forks	Silver Creek
TRIBUTARY OF:	Powder River	Cracker Creek
BASIN:	Powder Basin	Powder Basin
COORDINATES^a: Longitude:	-118.246 °W	-118.22096°W
Latitude:	44.766 °N	44.81098°N

^a Geographic projection using NAD_83 and formatted as decimal degrees to at least 4 places.

6. STREAM DESCRIPTION

6A. BARRIER TABLE (please provide the following information for barriers, which will help determine the benefit of the Mitigation site; indicate measurement units if applicable):

The majority of the streams above Mason Dam have been identified as having poor water quality and/or habitat functioning at risk, with access to high quality habitat impeded, partially blocked or fully blocked for fish access by improperly placed culverts and unscreened diversions. There is no direct access from Phillips Reservoir to high quality fish-bearing habitat without some type of passage issue.

The proposed mitigation will open up habitat to full fish passage within 5.6 miles of the McCully Fork and provide access to 5.3 miles of habitat within Silver Creek. This would increase redband trout access within 10.9 miles of stream, including 5.6 miles of very high quality habitat.

Elimination of the Silver Creek barrier would allow bull trout to move in and out of the occupied habitat, substantially reducing their vulnerability to stochastic loss. Additionally, one of the primary bull trout recovery goals is to maintain existing bull trout populations and expand local populations into potential spawning and rearing habitat. Changing the culvert to a bottomless arch will provide full connection of the Silver Creek and Cracker Creek populations and access other watershed areas. The additional barrier elimination at McCully Fork would allow potential expansion into one of the highest quality aquatic habitats in the watershed.

Silver Creek:

Locations	DOWNSTREAM				M	UPSTREAM			example
	3	C/N	2	1		1	2	E	
Type				D	C	NA	NA		D
Length				895	30	-	-		8 ft
Distance				16 miles		-	-	5.3 mi	1,700 ft
Level				5	3	-	-		1

LOCATIONS: M = the Mitigation site

NOTE: The *example* indicates that there is a dam which is 8 feet wide in the stream, is located 1,700 feet from the Mitigation in question, and is a seasonal or partial fish passage barrier for juveniles only.

See **ARTIFICIAL OBSTRUCTION: 6A. BARRIER TABLE** for further details regarding this table.

PLEASE PROVIDE ADDITIONAL DESCRIPTIONS FOR THOSE BARRIERS INCLUDED IN THE BARRIER TABLE OR FOR OTHER BARRIERS AFFECTING NATIVE MIGRATORY FISH MOVEMENT TO OR FROM THE MITIGATION:

Downstream 1: Mason dam is the downstream barrier as discussed throughout this application.

McCully Fork:

Locations	DOWNSTREAM				M	UPSTREAM			example
	3	C/N	2	1		1	2	E	
Type				D	C	NA	NA		D
Length				895	89				8 ft
Distance				13 miles				5.6 mi	1,700 ft
Level				5	5				1

LOCATIONS: M = the Mitigation site

NOTE: The *example* indicates that there is a dam which is 8 feet wide in the stream, is located 1,700 feet from the Mitigation in question, and is a seasonal or partial fish passage barrier for juveniles only.

See **ARTIFICIAL OBSTRUCTION: 6A. BARRIER TABLE** for further details regarding this table.

PLEASE PROVIDE ADDITIONAL DESCRIPTIONS FOR THOSE BARRIERS INCLUDED IN THE BARRIER TABLE OR FOR OTHER BARRIERS AFFECTING NATIVE MIGRATORY FISH MOVEMENT TO OR FROM THE MITIGATION:

Downstream 1: Mason dam is the downstream barrier as discussed throughout this application.

6B. SUMMARY TABLE (please provide the following information relative to the Mitigation, which will help determine its benefit):

Silver Creek:

	DOWNSTREAM	UPSTREAM
NMF Species Present Currently	Bull trout, redband trout, suckers	Bull trout, redband trout, suckers
NMF Species Present Historically	Red Band, Bull Trout, largescale and bridgelip suckers, northern pikeminnow	Red Band, Bull Trout, largescale and bridgelip suckers, northern pikeminnow
Habitat Quality	fair	good
Flows		
Water Quality	Fair (303c temp listed)	fair to good (303d temp listed)
Water Right Availability		
Land Use/Zoning	National Forest	National Forest
NMF = native migratory fish		

PLEASE PROVIDE ADDITIONAL DETAILS REGARDING THE INFORMATION PROVIDED IN THE SUMMARY TABLE (such as species listed under the state or federal ESA and descriptions of the stream channel and riparian habitat): According to the ODFW database, there are two native salmonids in the Upper Powder River watershed, redband trout and bull trout. Other native fish include bridgelip and largescale suckers and the northern pikeminnow (ODFW 2013c).

McCully Fork:

	DOWNSTREAM	UPSTREAM
NMF Species Present Currently	Red Band, Bull Trout,	
NMF Species Present Historically	Red Band, Bull Trout, largescale and bridgelip suckers, northern pikeminnow	Red Band, Bull Trout, largescale and bridgelip suckers, northern pikeminnow
Habitat Quality	fair	good
Flows		
Water Quality	Good until the formation of the Powder River then fair to poor	good
Water Right Availability		
Land Use/Zoning	National Forest	National Forest
NMF = native migratory fish		

PLEASE PROVIDE ADDITIONAL DETAILS REGARDING THE INFORMATION PROVIDED IN THE SUMMARY TABLE (such as species listed under the state or federal ESA and descriptions of the stream channel and riparian habitat): According to the ODFW database, there are two native salmonids in the Upper Powder River watershed, redband trout and bull trout. Other native fish include bridgelip and largescale suckers and the northern pikeminnow (ODFW 2013c).

6C. PROVIDE THE SOURCE FOR INFORMATION CONTAINED IN THE BARRIER AND SUMMARY TABLES:

- Bailey, T. 2012. Philips Reservoir Perch Removal Project. 2011 Project Report: Summary of Actions 2009-2011. Oregon Department of Fish and Wildlife, La Grande, OR.
- Bailey, T. 2013. Philips Reservoir Draft Fishery Management Plan. Prepared by ODFW, LaGrande, Oregon.
- PBWC (Powder Basin Watershed Council). 2001. Upper Powder River Watershed Assessment. Prepared for the Oregon Watershed Enhancement Board in conjunction with USFWS, USFS, and ODFW.
- ODFW. 2013a. Communication from Elizabeth Osier-Moats during a July 9, 2013 agency coordination meeting.
- ODFW. 2013b. Fish Passage Barrier Database for Baker County. Provided electronically to Baker County on 9/13/2013 by Tim Bailey, ODFW Fish Biologist.
- ODFW. 2013c. ODFW Fish Passage Priority List. Available at <http://www.dfw.state.or.us/fish/passage/index.asp>.
- Thompson, R. N., J. B. Haas, M. D. Collins, R. A. Willis and R. E. Sams. 1960. Environmental survey report pertaining to salmon and steelhead in certain rivers of eastern Oregon and the Willamette River and its tributaries: Survey reports of eastern Oregon rivers. Fish Commission of Oregon, Research Division, Clackamas, OR.
- USFWS. 2002. Chapter 13, Hells Canyon Complex Recovery Unit, Oregon and Idaho. US Fish and Wildlife Service. 2002. Bull Trout (*Salvelinus confluentus*) Draft Recovery Plan. Portland, Oregon
- USFWS. 2008. Bull Trout (*Salvelinus confluentus*) 5-Year Review: Summary and Evaluation.
- USFS. 1999. Final Biological Assessment. Wallowa-Whitman National Forest, Baker Ranger District: Upper Powder River Watershed. Baker County, Oregon.
- USFS. 2002. Fish Passage Barrier Data. Provided by the Whitman Ranger District of the Wallowa-Whitman National Forest during an August 2008 meeting.
- USFS. 2013. Blue Mountain Forest Plan Revision: Priority and Key Watersheds. Available at <http://www.fs.usda.gov/main/wallowa-whitman/home>

7. DESCRIBE HOW THE MITIGATION RELATES TO ANY EXISTING FISH MANAGEMENT PLANS, INCLUDING THE OREGON PLAN:

The mitigation would be implemented in designated but not known/documented occupied bull trout critical habitat, allowing increased habitat access. As a result, the mitigation will assist in achieving the bull trout recovery goal #1: *To maintain and allow expansion of existing local populations*. It is consistent with the upper Powder River Watershed Action Plan (developed under the Oregon State Plan) in removing key barriers noted in the Plan and allowing access to McCully Fork, noted as high potential salmonid habitat with barrier removal. It is consistent with the USFS revised draft Forest Management Plan in which the upper tributary subwatersheds (Cracker and Silver Creeks) are recognized as key watersheds in which restoration activities

should be focused. The revised Forest Management Plan identifies the headwater streams as much higher priority than other portions of the upper Powder River watershed. Replacement of the Silver Creek culvert is listed as a high priority by ODFW (2013b).

8. DESCRIBE ANY KNOWN RESTORATION OR LAND USE PLANS WHICH MIGHT HAVE AN IMPACT ON THE MITIGATION (e.g., is the watershed included within an expanded Urban Growth Boundary or does a Local Comprehensive Plan limit future development in the watershed):

The mitigation plan is consistent with all existing and proposed land management plans as described in number 7 above.

9. IF THE MITIGATION ENTAILS PROVIDING PASSAGE AT AN EXISTING ARTIFICIAL BARRIER, WHAT IS THE EXPECTED DATE OF REPLACEMENT OR MAJOR REPAIR FOR THE STRUCTURE IF IT WERE NOT USED AS MITIGATION:

The McCully Fork “culvert is a full box cement structure that would not be replaced or major repairs to occur for the foreseeable future and possible the life of this license which is for 30-50years. The Silver Creek Culvert is also not expected to be replaced or repaired for the life of the license which is for 30-50years.

10. DOES THE MITIGATION INCLUDE ANY ACTIVITY THAT IS A REQUIREMENT OR CONDITION OF ANY OTHER AGREEMENT, LAW, PERMIT, OR AUTHORIZATION (if "Yes", describe):

No, not at this time but if this mitigation is agreed upon by all stakeholders it will also become part of the license with FERC as conditions.

11. DESCRIBE HOW THE MITIGATION WILL BE FUNDED (include a cost estimate, funding sources, and whether funds are currently secured):

The funding source will be part of the complete financial package for the construction of the hydroelectric project made up of mainly low interest loans. These loans have not been secured at this time as there may be a year to a year and a half before construction activities would actually take place. The additional estimated costs at this time for mitigation would be near \$260,000.

12. DESCRIBE HOW THE MITIGATION WILL BE EVALUATED, MONITORED, AND MAINTAINED:

Evaluation: Baker County will work with ODFW and the Forest Service who will be evaluating the end result.

Monitoring/Maintaining: Baker County Road Department monitors/maintains county roads in the area and will monitor/maintain these sites. The Silver Creek culvert will be on Forest Service land but will be added to the Culvert Maintenance list to ensure it is checked regularly. Culverts are monitored in the spring and fall. If an issue occurs during the spring, maintenance is done right away, otherwise regular maintenance would be performed during the fall with low flows. Road maintenance is also done in the spring and fall with times depending upon ground moisture for road blading to occur. During these times the Road Department will also check these sites. Baker County would also work with the other agencies and the public that visit the area to report any information back to the County if any abnormalities are noticed.

MAP(S)

- Please attach one or more maps indicating the Artificial Obstruction, Mitigation, the streams on which they are located, and other barriers in those streams. A 7.5 minute USGS quad map is sufficient.

- Map(s) included
 - Figure 1 Vicinity Map
 - Figure 2 Upper Powder River Watershed area map
 - Figure 3 Map of Mason Dam
 - Figure 4 Map of McCully Fork (Mitigation Site)
 - Figure 5 Map of Silver Creek (Mitigation Site)

PHOTOS

- Please include photographs of the following (JPG files are preferred):

- Artificial Obstruction
 - Photo 1 Mason Dam
- Mitigation Site(s)
 - Photo 2 McCully Fork Culvert
 - Photo 3 Silver Creek Culvert
- up- and downstream habitat at the Artificial Obstruction and Mitigation Site(s)
 - Photo 4 McCully Fork habitat upstream of the box culvert
 - Photo 5 McCully Fork habitat downstream of the box culvert
 - Photo 6 Silver Creek habitat upstream of the culvert
 - Photo 7 Silver Creek habitat downstream of the culvert
- other barriers up- and downstream of the Artificial Obstruction and Mitigation Site(s)
 - Photo 8 Union Creek Culvert
 - Photo 9 Shaw-Stewart Diversion

ATTACHMENTS

- Table 1 ODFW barrier spreadsheet
- Figure 6 McCully Fork Mitigation Concept Drawing
- Figure 7 Silver Creek Mitigation Concept Drawing

Please submit this application electronically to the ODFW Fish Passage Coordinator at greg.d.apke@state.or.us and send one signed original paper copy of the application to the ODFW Fish Passage Coordinator at 3406 Cherry Avenue NE, Salem, OR 97303.

Figure 1 Vicinity Map

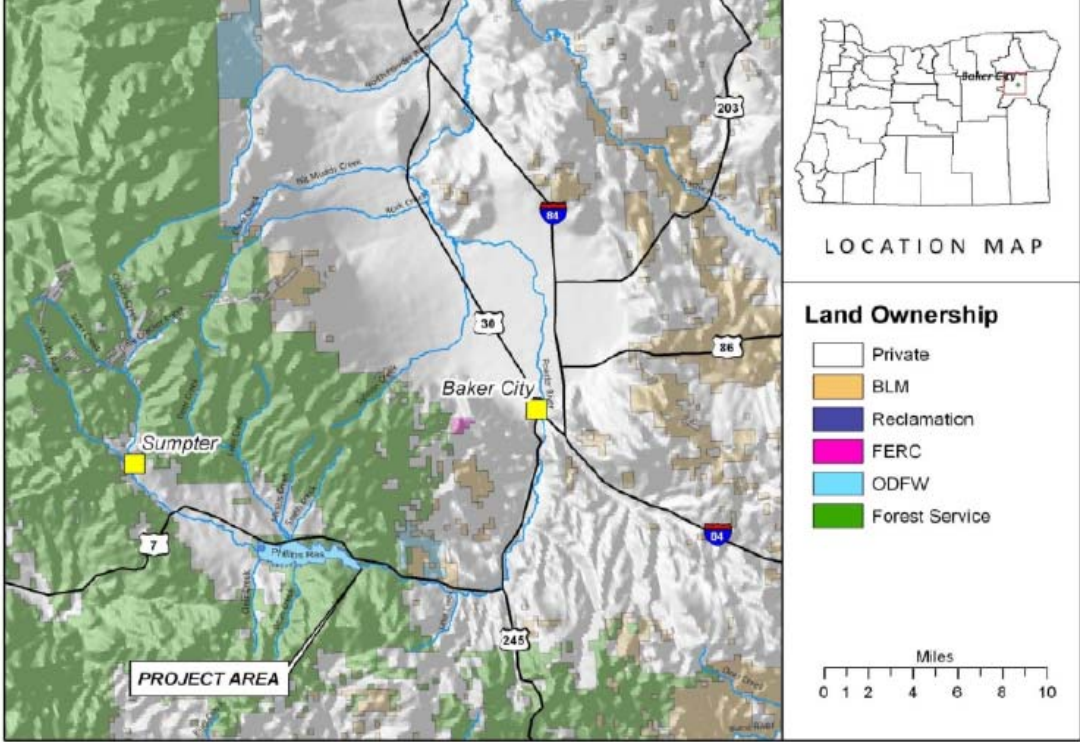


Figure 2 Upper Powder River Watershed area map

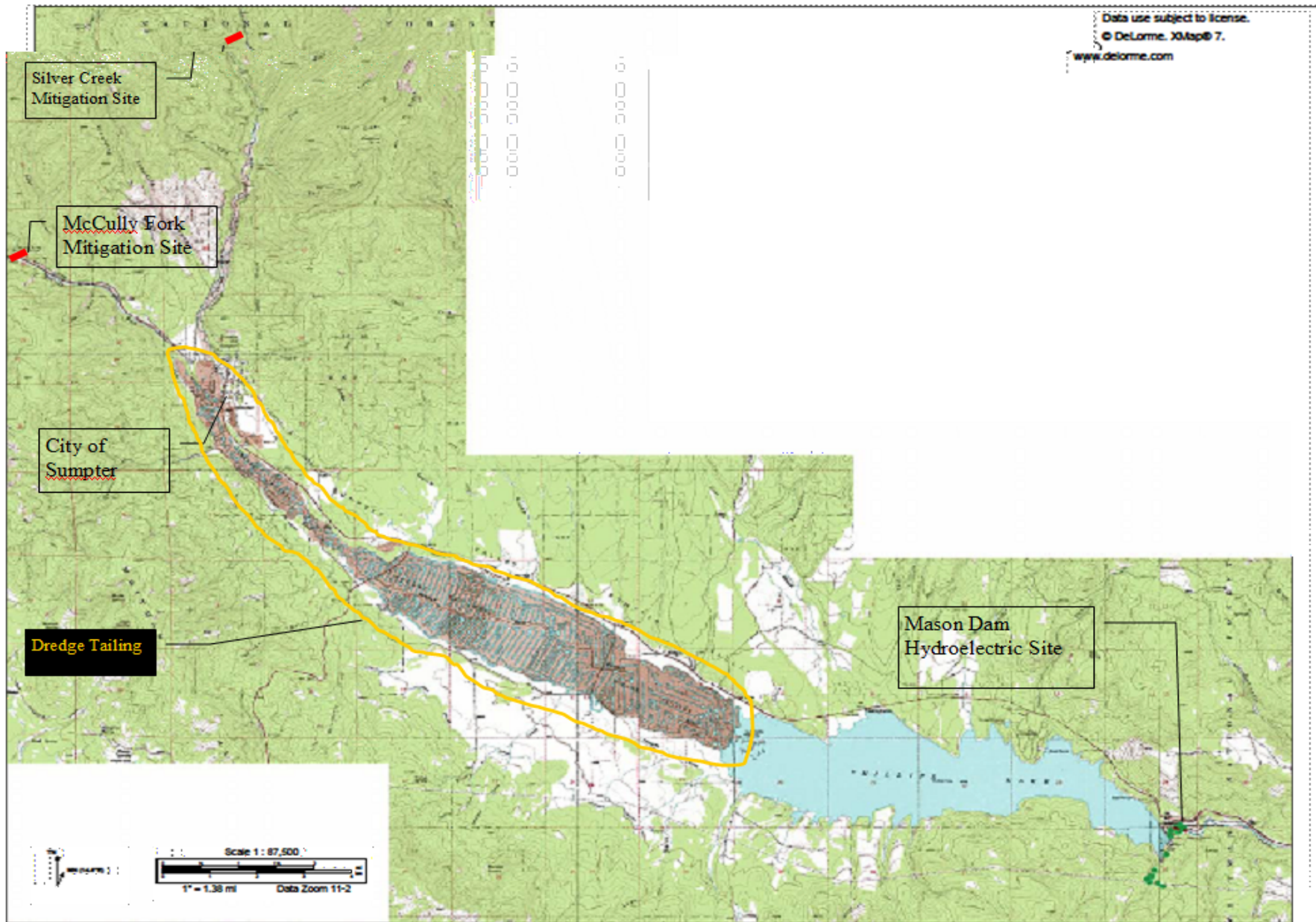


Figure 3 Map of Mason Dam

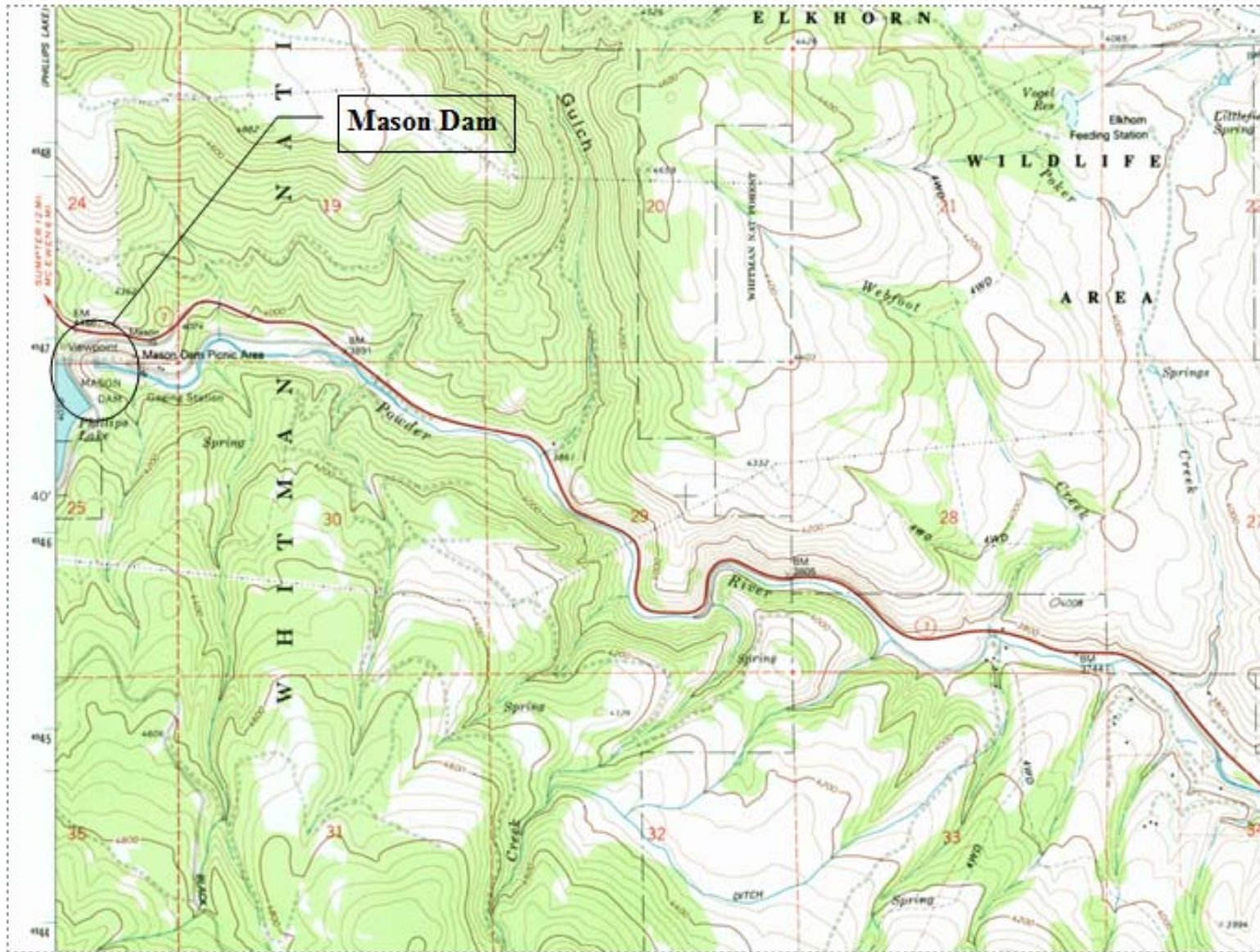


Figure 4 Map of McCully Fork (Mitigation Site)

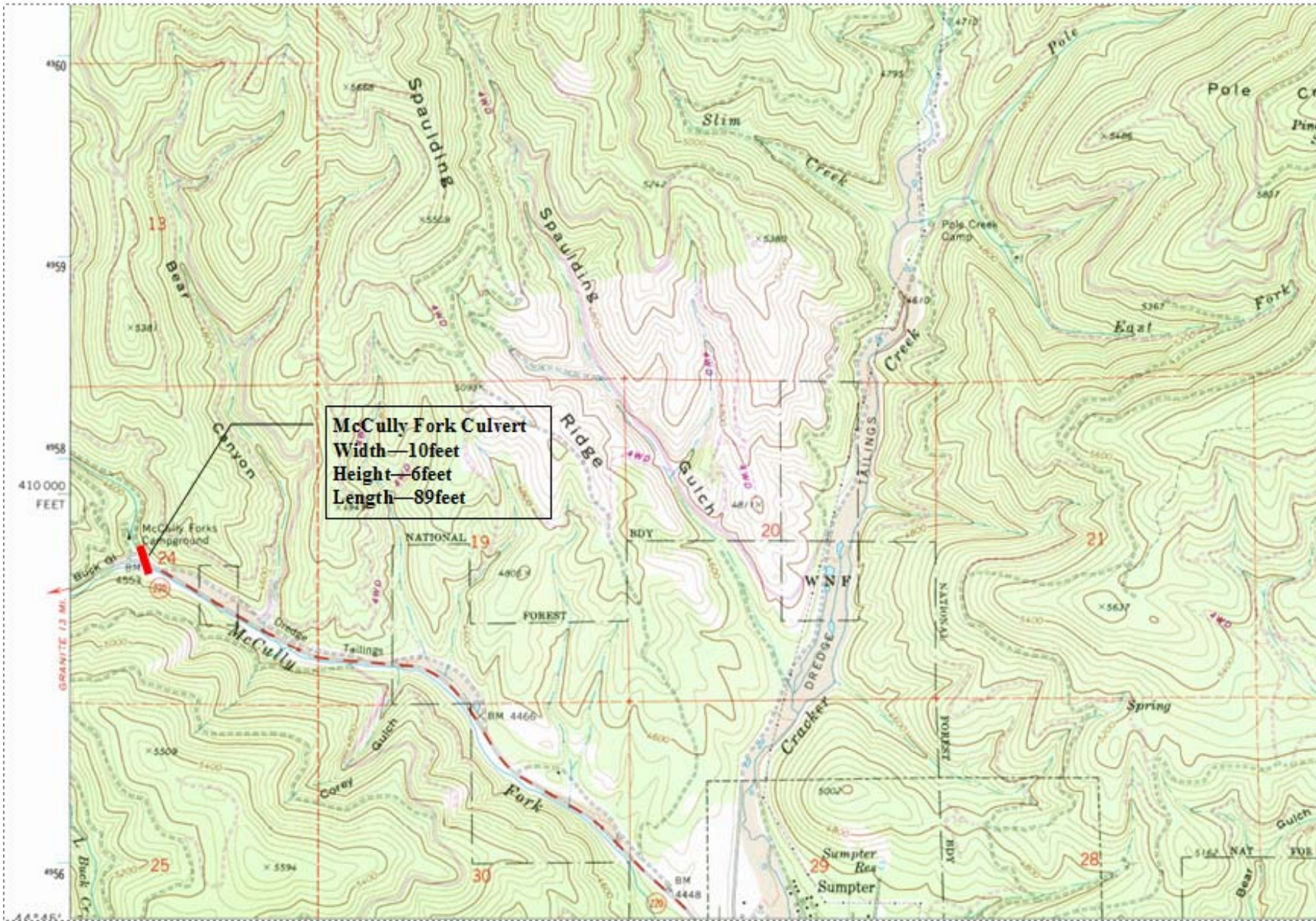


Figure 5 Map of Silver Creek (Mitigation Site)

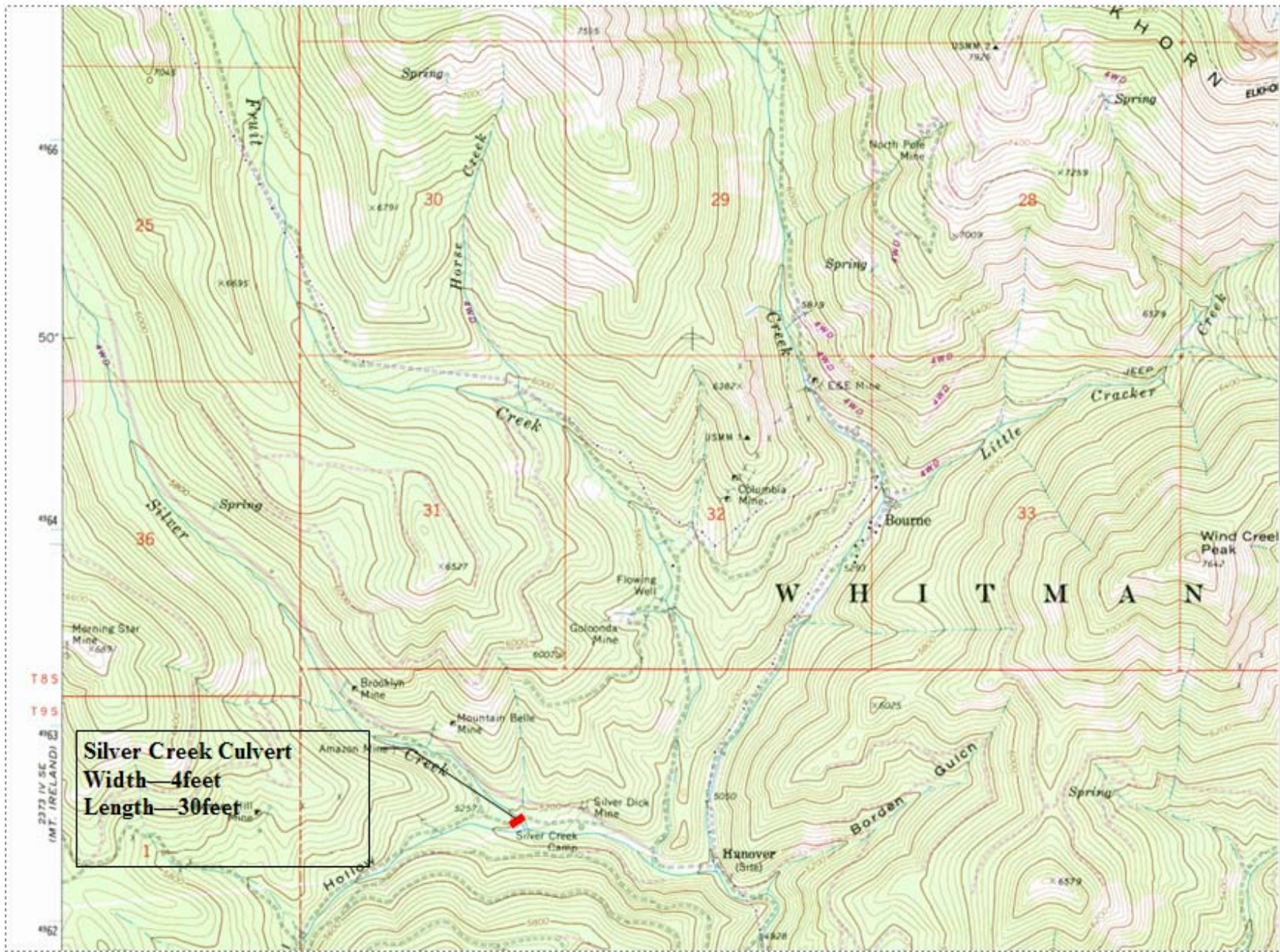


Photo 1 Mason Dam



Photo 2 McCully Fork Culvert



Photo 3 Silver Creek Culvert



Photo 4 McCully Fork habitat upstream of the box culvert



Photo 5 McCully Fork habitat downstream of the box culvert



Photo 6 Silver Creek habitat upstream of the culvert



Photo 7 Silver Creek habitat downstream of the culvert



Photo 8 Union Creek Culvert



Photo 9 Shaw-Stewart Diversion



Table 1 ODFW Barrier Spreadsheet

	A	B	C	D	E	F	G	H	I	J	K	L
1	Stream	Feature ID	Description	Drop (ft)	Slope (%)	Length (ft)	Miles Benefit	Passage Severity	Species Benefited	ODFW Priority	NAD 83 Lat	Long
2	McCully Fork	9208	Full Box	2+	2	80	5.6	5	RT	1	44.766	-118.246
3	Silver	32011	Round pipe	1	NA	NA	5.3	3	BuT, RT	2	44.81098	-118.222012
4	Wind	9418	Round pipe	0	2	50	1.8	4	RT	3	44.79	-118.195
5	Fruit Cr. 1	4570	Round pipe	1	6	60	0.32	5	BuT, RT	4	44.8092	-118.2127
6	Fruit Cr. 2	9216	Round pipe	2	1	45	0.18	5	BuT, RT	5		
7	Fruit Cr. 3	9215	Round pipe	0.5	1	40	0.31	3	BuT, RT	6	44.81467	-118.2106
8	Fruit Cr. 4	4717	Round pipe	1.5	1	40	0.96	4	BuT, RT	7	44.82057	-118.21093
9	Fruit Cr. 5	32218	Round pipe	0.9	NA	NA	Unknown	5	BuT, RT	8	44.82625	-118.21463
10	Little Cracker	9209	Round pipe	1	2	40	1.2	2	BuT, RT	9	44.82561	-118.19652
11	Crevice	NA	Round pipe	2.5	NA	NA	0.39	5	RT	10	44.75682	-118.12097
12	Cracker	9210	Countersunk Arch					0		NA		
13	Lake	32098	No longer exists					NA		NA		
14												

Figure 6 McCully Fork Mitigation concept Drawing

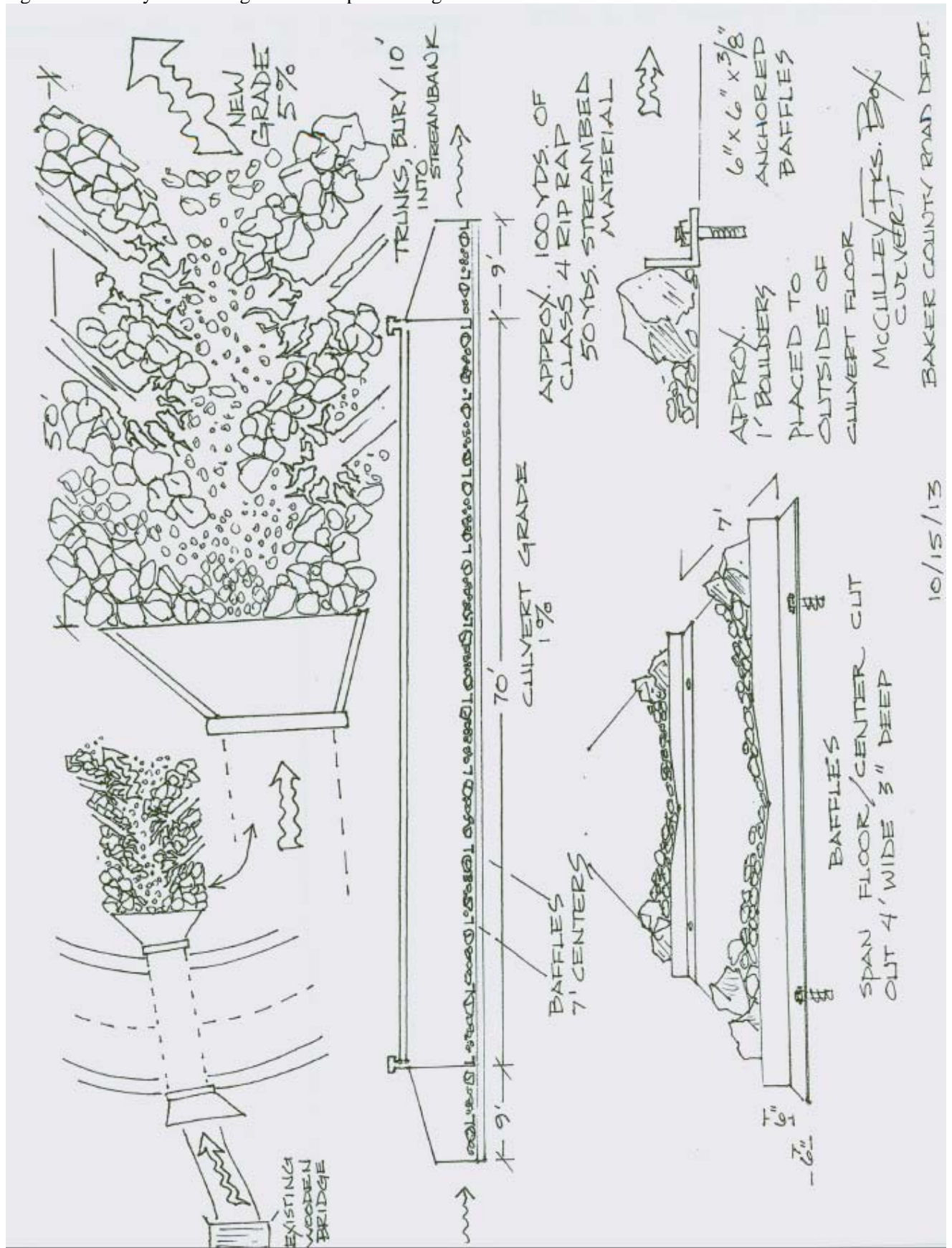
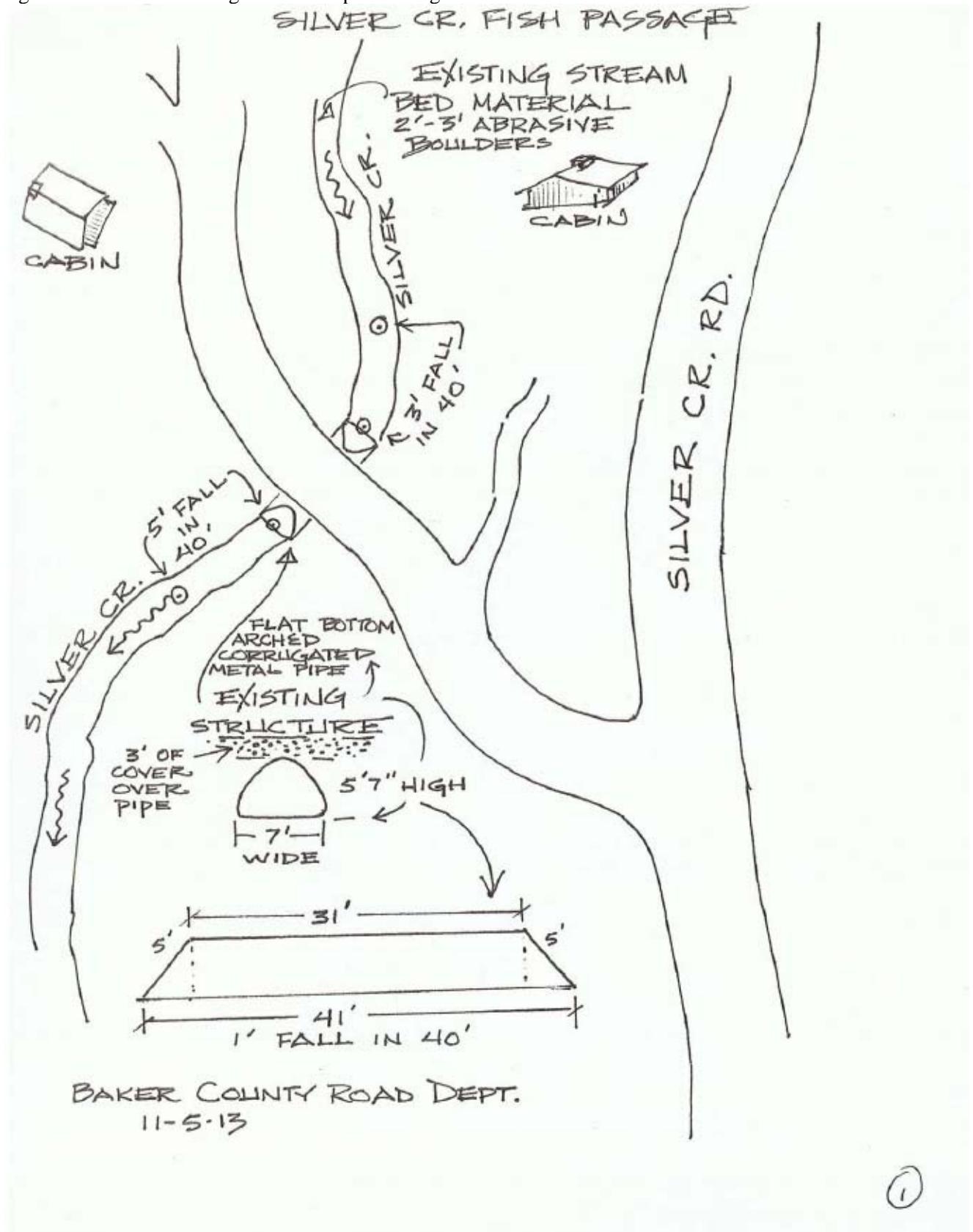
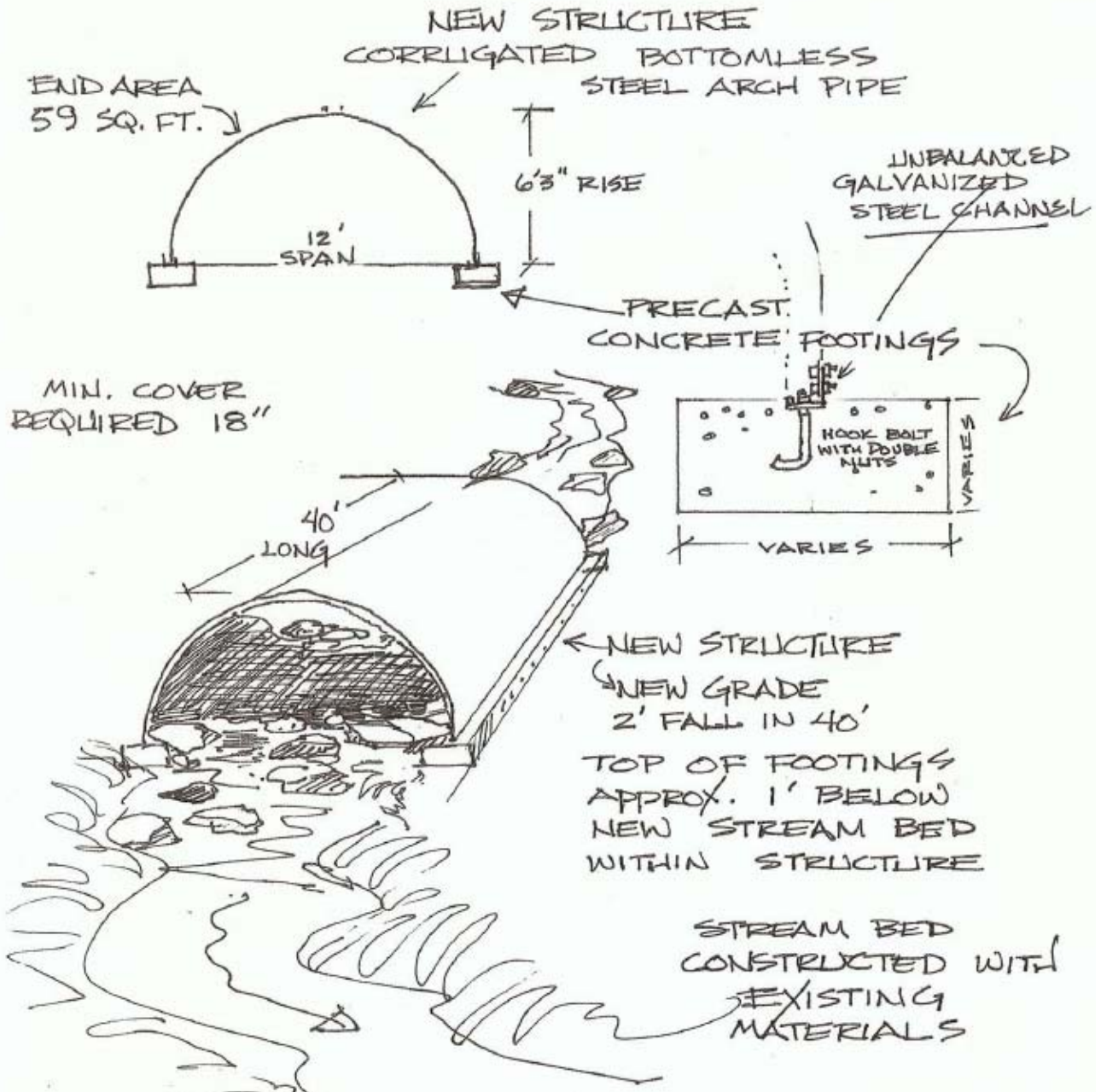


Figure 7 Silver Creek Mitigation Concept Drawing



BAKER COUNTY ROAD DEPT.
 SILVER CR. FISH PASSAGE
 (FLAT BOTTOM ARCHED CORRUGATED)
 STEEL PIPE REPLACEMENT



BAKER COUNTY ROAD DEPT.
 11-5-13

(2)