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Cover Letter: February 8th, 2016

Ladies and Gentlemen:

The enclosed Draft Environmental Assessment (EA) has been prepared for the Willow Creek Dam and Reservoir Transfer Project and is submitted for your consideration. Comments will be accepted until 5:00 p.m., Tuesday, March 8th, 2016. Comments can be sent via mail, e-mail, or telephone to:

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Copies of the EA are available upon request. The EA can be viewed on the DNRC website at www.dnrc.mt.gov in the Environmental Documents section. The EA distribution list is attached.
Thank you.

Sincerely,

Tim Davis
Water Resources Division Administrator

EA Distribution List:

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Draft MEPA

Environmental Assessment

Photograph of Willow Creek Dam Spillway

Willow Creek Dam and Reservoir Transfer

Prepared By the State Water Projects Bureau, MT DNRC

February 8th, 2016

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Willow Creek Dam and Reservoir Transfer

DRAFT ENVIRONMENTAL ASSESSMENT

Prepared By the State Water Projects Bureau, MT DNRC

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List of Acronyms and Abbreviations

BLM…….Bureau of Land Management

COE.....U.S. Army Corps of Engineers

DEQ.....Montana Department of Environmental Quality

DFWP.....Montana Department of Fish, Wildlife, and Parks

DNRC .....Montana Department of Natural Resources and Conservation

EA.....Environmental Assessment

EIS.....Environmental Impact Statement

MCA .....Montana Code Annotated

MEPA .....Montana Environmental Policy Act

NHP.....Montana Natural Heritage Program

USFWS.....U.S. Fish and Wildlife Service

USGS .....U.S. Geological Survey

SHPO .....Montana State Historic Preservation Officer

SWCB…….State Water Conservation Board

SWPB.....State Water Projects Bureau

WCWUA .....Willow Creek Water Users Association

WCID……..Willow Creek Irrigation District (proposed)

1.0 - PURPOSE AND NEED FOR ACTION

The Willow Creek Project (Project) is owned and administered by the Montana Department of Natural Resources and Conservation (DNRC) through its State Water Projects Bureau (SWPB) for the benefit of the Willow Creek Water Users Association (WCWUA). Located in Madison County, the Project consists of a dam and storage reservoir at the junction of Willow and Norwegian Creeks, approximately four miles east of Harrison and nine miles south of the Town of Willow Creek. The dam was constructed in 1938 by DNRC's predecessor, the State Water Conservation Board. The original storage capacity was estimated at 16,775 acre-feet. More recent estimates put this storage volume at 18,000 acre-feet. The original purpose of the Project was to provide supplemental irrigation to 12,000 acres of land along the Willow Creek Valley. See Appendix E for additional project information.

The WCWUA operates the Project under a water marketing contract with DNRC. The contract was originally entered at the time of construction and required that the WCWUA reimburse the State for original construction costs of the Project. Under the requirements of the water marketing contract, the WCWUA is responsible for operating and maintaining Project and also administering, marketing, and distributing Project water to its members. The DNRC has oversight over all Project activities. The WCWUA has worked with DNRC to safely operate the project to date. The WCWUA, through proceeds from the sale of water, has paid off the original construction costs to the State in addition to covering their internal costs incurred through the administration of the water marketing contract.

The WCWUA is administered as a private not-for-profit corporation organized pursuant to 85-6-101 MCA. The association is responsible for day-to-day dam operations, water deliveries, and maintaining the Project. While the reservoir's primary purpose is agriculture, it also provides public recreational opportunities and has become popular with boaters and anglers. Montana Fish, Wildlife and Parks (DFWP) own and maintain a fishing access site located on the southwest end of the reservoir, which provides the primary public access to the reservoir. The fishing access site is accessible by a maintained, paved county road.

The dam is an earth and rock fill embankment. Founded on Precambrian bedrock, the curved-axis dam is 105-feet high, 453-feet long, and has a crest width of 28-feet. Other major components of the dam include a 90-foot wide concrete ogee crest spillway that narrows down to a 50-foot wide chute; and a two gate control system that allows water deliveries through a 5-ft diameter horseshoe low level outlet works conduit. At the dam crest (8.5 feet above the spillway crest or normal full pool level) the reservoir storage capacity is 26,600-acre feet. The reservoir has a natural drainage area of 155 square miles and a surface area of about 885 acres at the normal full pool.

The WCWUA recently expressed interest in acquiring the project. At their request, Senate Bill 221 was introduced and passed into law in the 2015 legislative session. The bill directs DNRC to attempt to dispose of the project by June 30th, 2015. Acting for the Department, SWPB options for disposal of a state water conservation project are limited where there is an active water user's association such as at the Willow Creek Project (see 85-1-211(5) (a) and 85-6-109 MCA). The water user's association has a purchase preference and must approve any sale or disposition to any other entity. Also, the preface to SB 221 and the legislative hearings indicate that the transfer was to be to the WCWUA. Consequently, this EA does not consider alternatives for disposal of the Project other than transfer to the WCWUA.

SWPB is authorized to transfer ownership of a state water conservation project property and facilities to a water users' association without regard to other laws that would otherwise pertain to the disposition of state property (85-1-211(5) (a)) MCA. However, SWPB is required to determine the market value of the property ((85-1-210, 211(5) (a)) MCA. The determination of market value must consider all liens, encumbrances, and other limitations on the water project. The market value of the Project is detailed in Appendix C.

The WCWUA will not acquire any outstanding debt with the transfer. However, the Project has substantial costs and liabilities. The WCWUA agrees that it will assume all future maintenance, operation, repair and/or

rehabilitation and permitting costs for the Project. In exchange, the DNRC will transfer ownership to the WCWUA.

Transfer documents will reserve public recreational access and restrict commercial development on all lands transferred with the Project. Upon ownership transfer, the water marketing contract will be terminated and the DNRC shall have no further obligations or responsibilities for the Project or to the Association and its members.

Prior to transfer, to ensure that the WCWUA is fully aware of the risk, liability, and costs they will be assuming and to ensure that safety requirements are maintained, the WCWUA is required to:

- Conduct a boundary survey of all parcels considered for transfer or take steps acceptable to DNRC to ensure that only state property necessary for the continued operations of the Project are transferred. If a Certificate of Survey is required to relocate boundaries to accurately reflect the lands transferred, the survey must be completed by a qualified licensed surveyor and recorded prior to transfer. Costs of survey and other associated fees will be the responsibility of the WCWUA.

- Conduct their own investigations and due diligence studies of the Project. This will require, at a minimum, the services of a qualified professional engineering firm to conduct a full review of all pertinent information available and perform thorough site inspections. At the completion of said studies and inspections, the water users should be provided with a clear understanding of the costs and actions necessary for the safe operation of a high hazard structure under an approved operating permit from the Montana State Dam Safety Program.

- Investigate and demonstrate WCWUA's financial responsibility to operate and maintain the Project in compliance with the Dam Safety Act. This shall include the Association's ability to pay and obtain financing for major repairs or rehabilitation of the Project that may be necessary for continued operations. Consideration shall be given to forming an irrigation district or other district to establish financial responsibility.

- Obtain their own Dam Safety Operating Permit to continue operations and allow them to store water. This includes meeting all requirements under the Montana Dam Safety Act.

If after investigation and due diligence the WCWUA wishes to continue with the transfer, the following terms and conditions will be placed on the transfer:

- The Association shall agree to assume all liability; known and unknown, for all risk and hazard associated with ownership the Project.

- The transfer shall terminate all of DNRC's obligations under the Water Marketing Contract.

- The DNRC shall not be responsible for any costs or liabilities associated with the Project. The WCWUA as the sole owner shall be responsible for obtaining funding, including applying for public and private grants or loans, for rehabilitation, repair, operations, and maintenance of the Project.

- The Association shall agree to accept and assume all of the DNRC's liabilities, obligations, and duties associated with the Project.

- The Project shall not be operated for profit. The revenue generated by the sale of water from the Project shall be dedicated solely to paying the costs of continued operations, maintenance, repair, future rehabilitation, and safety of the Project.

- In order to ensure that existing public recreational access to the reservoir, transferred lands and the DFWP Fishing Access Site are maintained in perpetuity, the DNRC will relocate the property boundary adjacent to the DFWP Fishing Access Site to provide unrestricted access to the lake and allow to allow future recreational site development and / or assign to DFWP a conservation / recreational easement on all lands transferred to allow the same uses.

- Maintain historical water use practices. Existing historical use allows up to 12,000 acre-feet of stored water to be marketed for agricultural purposes on a yearly basis. Timing of this use is restricted from May 1st through September 30th. Any variation of timing or change in use of this water right must follow all applicable local, state, and federal laws and rules.

- Development or structures, except as needed for continued Project operations, shall not be permitted on the transferred property.

- The Project shall be maintained and operated in compliance with the Montana Dam Safety Act. If, after transfer, the WCWUA is unable to maintain compliance with the Dam Safety Act or is in violation of the operating permit, the Project, including all lands and water rights, shall revert to the DNRC free and clear of any liens, encumbrances, or restrictions. The WCWUA's interest in the Project and its benefits shall be terminated. The DNRC shall not in any way be obligated to the WCWUA or its individual members for continued or renewed operations of the Project.

- If the Project reverts to the DNRC as described in the preceding bullet point and the project meets Montana Dam Safety Standards, then marketing water for agricultural purposes will take precedence and continue to be the primary purpose of the Project. Assuming all appropriate laws regarding adding additional uses to the underlying water right are followed, this does not preclude marketing for secondary and tertiary beneficial uses, such as in-stream flows, hydropower, municipal, etc.

1.1 Project Goals: Goals of this transfer proposal include the following:

A. Attempt to dispose of the Project by transfer to the WCWUA as authorized under 85-1-210 & 85-1-211 (5) MCA and as directed in SB 221 as enacted by the 64th Montana Legislature.

B. Transfer ownership and all associated liabilities, responsibilities, and duties associated with the Project from the DNRC to the WCWUA or successor irrigation district or other suitable entity.

C. Place control and responsibility, including financial responsibility, for the Project with the primary beneficiaries of the Project.

D. Allow the WCWUA to investigate, pursue, and control their own options for rehabilitating the dam.

E. Maintain established and public recreational uses and access.

1.2 Project Location / Property Ownership

See Appendix H (property ownership)

1.3 Scope of Environmental Analysis

Public and Agency Involvement

Representatives from the WCWUA were involved in the planning process for the transfer. DNRC also contacted other state agencies to discuss the transfer and to identify potential environmental issues. These agencies included the DFWP, DEQ, NHP, and the SHPO. Because the proposed action is the transfer of ownership without any other changes to the Project's physical condition or operations, involvement by the other governmental agencies and the scope of this environmental analysis is limited.

Issues Studied in Detail

Because the proposed action—to transfer ownership of the Project from the DNRC to the WCWUA—does not involve physical or operational changes for the Project, many issues ordinarily considered in an environmental assessment of an action pertaining to a state water conservation project are not applicable. The issues examined in this draft EA were identified by the DNRC, communications with the WCWUA, and other agencies. Issues identified through the public comment period (see cover letter) will be addressed in the final EA and Notice of Decision. Listed below are the potential project related impacts examined:

- Effects to agricultural water uses, public and private land use and ownership.
- Effects to public safety, including traffic, noise, air quality, etc.
- Effects on recreation and esthetics.
- Effects on private property, the local economy and government services.

- Cumulative and secondary effects due to Project transfer.

Issues Eliminated from Further Study

The following resource issues were considered and eliminated from further study because the proposed action does not involve any construction or operational changes:

- Effects on downstream water quality and quantity (no anticipated impacts).

- Effects on Plant and Animal Threatened and Endangered Species, and Species of Special Concern, and effects to other wildlife and fisheries resources (no anticipated impacts).

- Effects on historic and cultural resources (no anticipated impacts).

- Effects on vegetation, including weed proliferation (no anticipated impacts).

These resource categories are summarized in Section 3.0 Affected Environment but are not discussed in Section 4.0 Environmental Consequences since no changes would occur. Also see the Alternative B (preferred alternative) narrative on page 7.

1.4 Applicable Regulatory Requirements

Montana Department of Natural Resources and Conservation (DNRC)

- Disposal of property by Department: 85-1-210 MCA – Defines procedures and requirements for the Department to dispose of projects.
- Water resources property management: 85-1-211(5) MCA - Defines applicable conditions and requirements for the Department to sell, abandon or transfer projects.
- Operation of projects with water users' associations: 85-6-109(5) MCA – Requires receipt of petition by 2/3 of stockholders in order for Department to dispose of project. Allows for petition of protest signed by 30% of stockholders to block disposal of project.
- Montana Dam Safety Act: 85-15-105 MCA – requires dam owners to have permits for operating high hazard dams (85-15-212 MCA). Prior to actual ownership transfer, should WCWUA or other entity as described below agree to take ownership, they will be required to obtain their own operating permit. In addition, subsequent dam rehabilitation will require a construction permit (85-15-213).

2.0 - ALTERNATIVES INCLUDING THE PROPOSED ACTION

This chapter describes the alternatives that were analyzed in this EA.

2.1 Development of Alternatives

The purpose of developing action alternatives is to address issues or potential problems raised by the proposed action. For this assessment three alternatives were considered.

Issues

As identified in Chapter 1.0, several issues are raised by the Proposed Action. These include potential effects to land use and ownership, public recreation, water use, and dam safety. The effect of the preferred alternative on these individual resource areas is examined and compared in the succeeding chapters.

2.2 Description of Alternatives

Alternative A - No Action

The no action alternative would result in the State retaining ownership of the Project. The WCWUA would continue to have access to stored water for agricultural uses. Public use and access would remain unchanged, and dam safety at the Project would continue to be DNRC's responsibility. As owner, The DNRC would determine and implement the future rehabilitation needs of the Willow Creek Project and continue to oversee all operation and maintenance tasks.

Alternative B - No Fee Transfer to Irrigation District (Preferred Alternative)

This no fee transfer alternative would transfer the Project, including the associated water rights, to a newly formed Willow Creek Irrigation District (WCID) or other district. This is the preferred alternative because future costs to rehabilitate the spillway, and other potential Project repairs and upgrades needed to maintain compliance with dam safety requirements, may exceed the WCWUA's ability to pay for those costs. An irrigation district has authority to levy taxes, collect fees, issue tax exempt bonds, and is eligible for state and federal grant and loan programs that are unavailable to a private corporation such as the WCWUA. Access to these funding sources provides an irrigation district the ability to keep the Project safe and operational. The future WCID, as the Project owner, would assume all Project costs, liabilities, and any other ownership issues, including responsibility to meet state dam safety requirements and maintain an approved operating permit. The no fee transfer requires that the site remain open to the public for recreational purposes, and that Project lands could not be developed. As owners, the WCID would be solely responsible for operating and maintaining the dam, performing all repairs, and ensuring all future improvements and rehabilitation efforts are properly conducted according to the Montana Dam Safety Act.

Alternative C - No Fee Transfer to Association

This alternative is similar to Alternative B. However, the authority, rights, responsibilities and privileges, including the ability to raise funds, collect fees and limited liability (provided to Irrigation Districts), would not be the same as Alternative B. The Association would assume the same costs, liabilities and ownership issues, including responsibility to meet State dam safety requirements and maintain an approved operating permit. However; the Association would not have the financial benefits, revenue raising opportunities, and security available to an Irrigation District. Conditions of the transfer, as detailed in section 1.0 would remain the same. Note that, unlike an Irrigation District, there are no liability limits for a Water User Association.

For future reference, alternatives B and C will be referred to as the “Action Alternatives”.

3.0 - AFFECTED ENVIRONMENT

To evaluate potential impacts resulting from the proposed alternative and the other alternatives described in Chapter 2.0, it is necessary to understand the current environmental condition of the project area.

3.1 Landform and Soil:

Willow Creek Dam is located on Willow Creek in the western part of the Three Forks Basin. The dam is in rolling hill country between the Tobacco Root Mountains to the west and the Madison Range to the east. Elevations range from 4,645 at the dam crest to over 10,000 feet in the two adjacent mountain ranges. The dam is founded on Precambrian metamorphic rock consisting of mostly gneiss and mafic sills. Soils in the vicinity of the dam are predominately Shurley very flaggy course sandy loam, intermixed with rock outcrops of gneiss, schist and granite. This soil type is characteristically deep and well drained.

3.2 Water Resources

The reservoir is fed by Willow Creek from the west, Dry Hollow Creek from the southwest and Norwegian Creek from the south. The capacity at full pool (spillway crest) is 18,000 acre-feet. Up to 12,000 acre-feet of stored water per year is marketed for irrigation. The remaining reservoir water is used to provide carry-over storage in case of drought. The reservoir is also used for water-based recreation, primarily fishing and boating.

Wetlands: Wetlands are present downstream from the dam and in the upper reaches of the reservoir. These wetlands are altered and consist primarily of scrub-shrub and forested classes. They are seasonally flooded and dewatered depending on reservoir storage and releases from the dam.

Water Rights:

Willow Creek Reservoir is fed by Willow Creek, Dry Hollow Creek and Norwegian Creek. The DNRC owns water rights on these streams. Water Right No. 41G 119378 00 is on Willow Creek and has a volume of 32,792 acre-feet. Water Right No. 41G 119380 00 is on Norwegian Creek and has a volume of 5,388 acre-feet. Both rights have a priority date of October 24, 1935. These water rights were determined in Case No. 41G-109 before the Montana Water Court. Water under these rights is stored in the reservoir for later release for irrigation. A copy of the abstract for each right is included in Appendix A. Although the reservoir is filled primarily during spring runoff and is released for beneficial uses during the irrigation season, these rights allow water to be diverted into storage year round. Water can be stored only when water is physically and legally available and there is capacity in the reservoir. The Project and the lands it serves are located in basins subject to basin closures for the Jefferson (85-2-341 MCA) and upper Missouri (85-2-343 MCA) River Basins. These closures prohibit new appropriations except uses including municipal, domestic, and storage of high spring flows. The closure for the upper Missouri remains in effect until final decrees have been issued for all of the subbasins of the upper Missouri River Basin.

3.3 Vegetation

The area is mostly rolling rangeland, with the predominant grasses being bluebunch wheatgrass, western wheatgrass, needle-and-thread, and threadleaf sedge. Sagebrush is also common throughout the area. Tree species include Douglas fir and western juniper, with aspen and cottonwood found in drainages and sheltered areas with sufficient soil moisture.

Weeds: Spotted knapweed is present in small patches around the shore of the reservoir Canada thistle, musk thistle, houndstongue, and common mullen also occur in varying densities.

3.4 Wildlife

Wildlife commonly found in the vicinity of the project area include moose, elk, mule deer, white-tailed deer, beaver, muskrat, mink, Columbian ground squirrel, mountain lion, black bear, coyote, fox, raccoon, badger, sage grouse, sharp-tailed grouse, ruffed grouse, ring-necked pheasant, Canada geese, great blue heron, sand hill crane and a variety of duck and song bird species. Raptors that have been sighted in the area include bald eagles, golden eagles, great horned owls, turkey vultures, osprey and red-tailed hawks. Osprey, golden eagles, bald eagles, and great-horned owls are not year-round residents of the area. The threatened grizzly bear is not known to be present within the project area, nor is there any known denning or summer use sites.

Species of Special Concern: The lynx is listed as threatened in the western third of Montana (including the project area). The following is a list of species of special concern that may be found within the general area (Tobacco Root Mountains). In some cases, the habitat for listed species includes all or most of Western Montana.

Information is from http://mtnhp.org/SpeciesOfConcern/.

Western Spotted Skunk
(Spilogale gracilis)
Riparian Shrub

Sharp-tailed Grouse
(Tympanuchus phasianellus)
Shrub Grassland

Townsend's Big-eared Bat
(Corynorhinus townsendii)
Caves in Forested Habitat

Black-tailed Jack Rabbit
(Lepus californicus)
Sagebrush/Grassland

Great Basin Pocket Mouse
(Perognathus parvus)
Sagebrush/ Grassland

Canada Lynx
(Lynx canadensis)
Subalpine Conifer Forest

Grizzly Bear
(Ursus arctos)
Conifer Forest

Mountain Plover
(Charadrius montanus)
Grasslands

Black Rosy-Finch
(Leucosticte atrata)
Alpine

Lewis's Woodpecker

(Melanerpes lewis) Riparian

3.5 Fisheries

Appendix D provides a complete listing of fish species found in the reservoir and adjacent streams. This information is derived from the DFWP Montana Fisheries Information System.

3.6 Ownership and Land Use

Land Ownership: Land ownership within the project area and immediate vicinity of the reservoir includes state and private lands. To mitigate any future discrepancies, the water users will be required to conduct and record a complete survey of Project lands or take steps acceptable to DNRC to ensure that only state property necessary for the continued operations of the Project are transferred.

Land Use: Primary land uses in the vicinity of the project area include livestock grazing, farming (primarily hay and alfalfa), and recreational use associated with the Willow Creek Reservoir and surrounding lands. Mining and cattle grazing occur on both public and private lands in the area. Most of the land surrounding the reservoir is privately owned.

Regulatory Restrictions on Private Property Rights: The Willow Creek Reservoir and Dam are owned by the State of Montana. No regulatory restrictions on private property are associated with the normal operation and maintenance of the dam and reservoir.

Wilderness: No designated wilderness or wilderness study areas exist in the immediate area.

3.7 Cultural Resources

The Willow Creek Dam has been documented and recorded as a cultural resource due to the dam's age (Smithsonian number 24MA2088; see Appendix F). The dam was completed in 1938.

Cultural Uniqueness and Diversity: Based on information from the DNRC Trust Lands Division Archeologist, no unique cultures or cultural diversities exist in the immediate project area.

3.8 Noise

Existing noise sources in the project area are from agricultural and recreational activities, birds and animal life.

3.9 Air Quality

The air quality in the area is generally considered good. Significant reductions in visibility are generally weather related.

3.10 Transportation Facilities

The primary transportation facilities in the project area include the main, paved county road from Harrison to the DFWP Fishing Access, gravel county roads, and non-improved dirt access routes (two-tracks).

3.11 Socio - Economic

Economic activity:

Economic activity is almost entirely dependent on agriculture, with livestock production, grazing, hay and alfalfa being the major local commodities. Some limited logging and mining occur in the nearby Beaverhead-Deer Lodge National Forest and other state and private land in the area. Other economic activity is generally associated with the recreational use of the reservoir and surrounding area.

Employment:

Agriculture and agricultural related business account for the majority of the jobs in the area. Logging, mining, recreation, service sector businesses and government account for the remainder of the job base in the region.

Recreation:

Recreational use at the Willow Creek Reservoir is generally moderate, with fishing being the most common activity. Angling use varies depending on the local water conditions. Other recreational activities in the area include boating, camping, picnicking, swimming, hunting, and wildlife viewing. Public access is provided primarily through DFWP owned fishing access site and the county road, located on the west shore of the reservoir.

Communities:

Towns in the vicinity of the project include Willow Creek (210) and Harrison (population 162).

Risks / Health Hazards:

Willow Creek Dam is classified as a “high hazard” structure which means that failure of the dam could cause loss of life.

The definition of a high hazard dam is one that would likely cause loss of life in the event of catastrophic failure. The classification is not a reflection of the actual condition of the dam. Should this dam fail catastrophically, potential inundation areas include portions of Willow Creek, Three Forks, and Townsend. Local railways and highways, including I-90 would also likely be inundated.

The 2014 Periodic Inspection Report (*) notes that the spillway does not meet Montana dam safety capacity requirements and that it is structurally compromised due to concrete deterioration. The report recommends that the required spillway capacity should be updated using currently accepted methods, and that alternatives should be developed to bring the spillway into compliance with dam safety requirements. Based on recent construction activity at other DNRC water projects, the cost of rehabilitating the spillway at Willow Creek would cost approximately $5 million.

More detailed analysis is necessary to insure that the spillway capacity, structural condition, and other dam elements are in compliance with current standards and dam safety requirements. The dam is regulated by the State Dam Safety Program (DNRC WRD Water Operations Bureau) and is subject to the requirements of the Montana Dam Safety Act as administered by DNRC.

(*) The Water Users Association is currently conducting their own hydrologic studies which may significantly change spillway capacity requirements. Should the project transfer and the Montana Dam Safety Program accept the Water Users Association's findings, the existing spillway capacity may meet design capacity requirements.

Emergency Response / Emergency Evacuation Plans:

An Emergency Action Plan developed by the SWPB of the DNRC is in place, per Montana Dam Safety Act requirements.

Liability:

Ownership and operation of the Willow Creek Dam Project is accompanied by the assumption of risk and liability for a high hazard project that provides access to the public and by the responsibility for all project costs—especially those required to comply with applicable dam safety rules and regulations.

Claims against the owner or operator of the Project may arise from incidents involving members of the public engaged in activities at the project, from damages resulting from operation of the project, or from damages resulting from dam failure. Statutory limits for tort liability of the State of Montana are $1.5 million per occurrence and $750,000 per claim. The WCWUA does not have statutory limits on tort liability. The owner may bear other forms of liability under various authorities for potential damages resulting, for example, from Project operations that damage habitat or impair water quality downstream of the project. Liability for the risk of dam failure may be mitigated by ensuring that maintenance and rehabilitation efforts are sufficient or by other means such as reducing storage levels. Regardless of the ownership of the Project and the risk mitigation measures taken by the Project owners, the risk for damages from inundation by Project water is borne to a substantial degree by parties located in the potential inundation area.

Public Services / Taxes / Utilities:

Public services and utilities in the area include routine road maintenance and repair, police and fire protection, and electrical and telephone service. The local tax base is primarily dependent upon agricultural land uses, outdoor recreation, government and related businesses.

4.0 - ENVIRONMENTAL CONSEQUENCES

This chapter is organized in the same order as Chapter 3.0, with the probable consequences of the action alternatives described for each resource area, along with the probable consequences of the no action alternative. Please note that the probable consequences of the identified action alternatives are similar, since each action alternative would essentially involve the same activity (transferring the dam, reservoir and associated property). If differences in the potential action alternative impacts are anticipated, they will be discussed in each respective section.

The assessment of potential consequences is based on previous project transfers and their associated impacts, and/or issue specific references and evaluation methods (identified in the Reference Section 8.0).

4.1 Landform and Soils

Effects of No Action

No effects

Effects of Action Alternatives

No effects

4.2 Water Resources

Effects of No Action

No effects

Effects of Action Alternatives

No effects

<u>Water Rights and Reservations:</u>

Effects of No Action (Alternative A)

No effects. The no action alternative would result in the State retaining ownership of the project and water rights. The WCWUA would continue to have access to stored water in accordance with the existing Water Marketing Agreement and Water Purchase Contracts.

Effects of Action Alternative

No effects (short-term). The short-term effects are non-significant since the existing water rights and water purchase agreements are already restricted to these purposes. Possible long-term effects will depend on the ability of the water users or the newly formed Irrigation District to fund required studies and improvements to insure compliance with dam safety requirements. Generally, long-term effects are essentially unknown, as the water users will have the option of applying for a change of use permit (same options and process open to all Montana water rights holders).

In summary, with the commitment to maintain historical water use practices, no negative effects on water rights to downstream water users are anticipated with alternatives A, B or C. There may be future rehabilitation related effects; however, these effects would be evaluated at the time rehabilitation plans are confirmed and through future permitting requirements. These future issues are unknown and are beyond the scope of this EA.

4.3 Vegetation

Effects of No Action

No effects

Effects of Action Alternatives

No effects

4.4 Wildlife

Effects of No Action

No effects

Effects of Action Alternatives

No effects

4.5 Fisheries

Effects of No Action

No effects

Effects of Action Alternatives

No effects

4.6 Ownership and Land Use

Effects of No Action

No effects

Effects of Action Alternatives

Alternative B and C would affect land ownership due to the transfer of title to the water users or WCID. Under Alternative C restrictions would be placed upon the property to ensure the site could not be developed, and that the property would remain open to the public for recreational uses. The preferred alternative B would have similar restrictions, but these would be inherent for an Irrigation District. These effects would be minor and non-significant in the short and long term. To help minimize future property line disputes that might result from the restrictions placed on the subject property, the water users will be required to conduct and record a complete survey of the Project or take steps acceptable to DNRC to ensure that only state property necessary for the continued operations of the Project are transferred.

Government Regulatory Restrictions on Private Property Rights:

Effects of No Action

No effects

Effects of Action Alternatives

Alternative C could impose deed restrictions on use of the property to insure the property would not be developed, and would remain open to the public for recreational uses. However, these are not regulatory restrictions but rather a reservation of public rights that already exist. The preferred alternative B would have similar restrictions, but these would be inherent for an Irrigation District. These effects would therefore be minor and non-significant in the short and long term.

Wilderness:

Effects of No Action

No effects

Effects of Action Alternatives

No effect (no designated wilderness or wilderness study areas exist in the area)

4.7 Cultural Resources

Effects of No Action

No effects

Effects of Action Alternatives

No effects.

4.8 Noise

Effects of No Action

No effects

Effects of Action Alternatives

No effects.

4.9 Air Quality

Effects of No Action

No effects.

Effects of Action Alternatives

No effects.

4.10 Transportation Facilities

Effects of No Action

No effects.

Effects of Action Alternatives

No effects.

4.11 Socio – Economic

Economic Activity:

Effects of No Action

No effects.

Effects of Action Alternatives

No effects.

Quantity and Distribution of Employment:

Effects of No Action

No effects.

Effects of Action Alternatives

No effects.

Recreation:

Effects of No Action

No effects. Recreational opportunities and access associated with the reservoir would continue.

Effects of Action Alternatives

No effects with Alternative B or C. Public recreational opportunities and access would continue due to deed restrictions or Irrigation District statutory requirements insuring that the property could not be developed, and remains open for public use.

Community Impacts:

Effects of No Action

No effects.

Effects of Action Alternatives

No effects.

Risks / Health Hazards:

Effects of No Action

No effects.

Effects of Action Alternatives

No effects. The dam would still have to be maintained and operated according to Montana Dam Safety Act requirements, regardless of ownership.

Emergency Response / Emergency Evacuation Plans

Effects of No Action

No effects.

Effects of Action Alternatives

No effects (assuming property continues to be tax-exempt). The dam would still have to be maintained and operated according to Montana Dam Safety Act requirements, regardless of ownership. There could be a beneficial effect to the local tax base should the property become part of the taxable land within the County.

Public Services / Taxes / Utilities:

Effects of No Action

No effects.

Effects of Action Alternative

No effects.

5.0 - CUMMULATIVE EFFECTS

The EA to this point has discussed impacts that could result solely from the proposed property transfer. This section will discuss impacts that may occur when the proposed actions are considered cumulatively to other potential changes or developments.

No specific projects or actions have been identified that, taken cumulatively, will cause any significant, long-term environmental impacts.

Effects of No Action

No significant cumulative environmental impacts are anticipated.

Effects of Action Alternatives

No significant cumulative environmental effects associated with the action alternatives are anticipated.

6.0 - PREFERRED ALTERNATIVE

6.1 Preferred Alternative B – No Fee Transfer

The preferred alternative is Alternative B, as discussed below, along with an explanation of why this alternative was selected over the other proposed action options.

The No Fee Transfer to an Irrigation District transfers the project, ownership liabilities, and associated water rights to the WCID. To implement the option of a no fee transfer, certain restrictions, covenants, and conditions committing the Project and underlying water right to agricultural / irrigation uses would be required. Restrictions on available uses of the lands transferred would be necessary to ensure that the site would not be developed and that the property continues to be open to the public for recreational purposes. These restrictions prevent profiting from a State asset, while protecting the

agricultural community and continuing the historical uses of the site. Risk and liability associated with site ownership would become the responsibility of the WCID.

The formation of an Irrigation District establishes the WCID as a governmental agency, which in turn provides additional resources available for funding major rehabilitation efforts. Forming into an irrigation district also ensures the continued agricultural purpose of the project. No short or long term adverse or significant effects are associated with the preferred alternative.

6.2 Actions to Offset Adverse Impacts

The Preferred Alternative B was chosen in response to a request by the water users for project ownership. The No Action alternative was not selected because it would not meet the objective of attempting to dispose of the Project and its liabilities.

6.3 Need for an EIS

Because no significant impacts were identified, the DNRC believes this EA is sufficient to comply with the MEPA and that an EIS will not be required. A comparison table for the action alternatives and the no action alternative follows. No adverse effects or significant impacts were identified.

6.4 Alternative Comparison Table

RESOURCE	No Action		Action Alternatives as Described
Geology	No Effects		No Effects
Landform and Soils	No Effects		No Effects
Water Rights	No Effects		No Effects – Alternative B (preferred) – water would continue to dedicated to agricultural / irrigation.
Ownership/Land Use	No Effects		Alternative B would affect land ownership due to the transfer of title to the WCID. With Alternatives B and C, conditions would be placed upon the property (and transfer) to insure the site could not be developed, and that the property would remain open to the public for recreational uses. These effects would be minor and non-significant in the short and long term to reservoir operations.
Government Regulatory Restrictions on Private Property Rights	No Effects		The action alternatives would not involve additional regulatory restrictions on existing private property. Alternative B and C would preserve existing agricultural purposes and public recreational access and use. These effects would be minor and insignificant in the short and long term.
Noise	No Effects		No Effects
Air Quality	No Effects		No Effects
Transportation	No Effects		No Effects
Socio-Economic	No Effects		No Effects
Economic Activity	No Effects		No Effects
Quantity / Distribution of Employment	No Effects		No Effects
Recreation	No Effects		No Effects
Communities	No Effects		No Effects
Risks / Health Hazards	No Effects		No Effects

Resource	No Action		Action Alternatives
Emergency Response / Evacuation	No Effects		No Effects
Public Services Taxes / Utilities	No Effects		No Effects (Note: potential beneficial effect if property becomes taxable)
Cumulative Impacts	No Effects		No Effects

6.5 Project Implementation

While the Department has been directed to attempt to dispose of the Project by June 30th, 2015, the EA Notice of Decision to proceed will be authorized upon the water users completion of their due diligence studies, survey requirements, and commitment to maintain historical water use practices. The actual implementation of the chosen alternative would proceed upon Department's concurrence that the aforementioned transfer conditions and/or Irrigation District formation have been met.

6.6 Monitoring

Other than insuring that all project transfer stipulations are adhered to, it is not anticipated that any long-term monitoring will be required with the implementation of the preferred alternative.

7.0 - GLOSSERY of TERMS

Acre-foot: The volume of water that would cover an area equivalent to 1 acre, 1 foot deep, or 43,560 cubic feet (325,851 gallons).

Aggregate: Sand and gravel materials used to make concrete or roller-compacted concrete or used to surface roads.

Aquatic Habitat: The place in which water-dependent plants and animals normally live.

Aquifer: A water-bearing layer of permeable rock, sand, or gravel.

CFS: Measure of water flow in cubic feet per second. One cfs equals about 450 gallons per minute.

Chute: The face or channel of a dam's spillway.

Conservation Pool: Beneficial use of stored water for fisheries, downstream flows, etc.

Crest: The top face of a dam's spillway or dam itself.

Cumulative effects: A general estimation of the effects of project impacts in combination with other past, present, and reasonably foreseeable future developments.

Enhancements: Measures taken to improve natural and man-made resources.

Full pool: Reservoir level at spillway crest.

High hazard: A dam whose failure would result in the loss of life; not a statement of condition.

Inflow: Water flowing into a reservoir.

Lithic: Relating to or made of stone.

Long-term impact: Impacts that occur beyond the actual construction timeframes.

Mitigation: Measure taken to lessen an impact.

Outflow: Releases from a project made through the outlet works or spillway.

Spillway: Structure that discharges large quantities of water around dam without damaging the dam.

Spillway Design Flood: The peak flood flow used to size maximum discharge capacity of a dam.

8.0 - REFERENCES

Water Storage in Montana; A Report Submitted to the 63rd Legislature – Office of the Governor, Jan. 2015.

MT Natural Heritage Program – Data Query on Plant and Animal Species of Special Concern. March 2015.

MT DFWP On-line Fishing Guide, February 2015. DFWP Website, www.dfwp.mt.gov

Census and Economic Information Center Website, MT Dept. of Commerce, February 2015. www.ceic.mt.gov

MT DNRC State Water Project Bureau, Project Information Report, by Michele Lee and James P. Domino, MT DNRC State Water Projects Bureau, December 2014.

Willow Creek Dam Cultural and Historic Resources Site Report, by Patrick Rennie, DNRC Trust Lands Management Division, October 2006.

A Guide to the Montana Environmental Policy Act, John Mundinger, Todd Everts, 1998. Revised by Larry Mitchell, 2004 and Todd Everts, 2006. Published by the Legislative Environmental Policy Office.

Montana Water Law. MT DNRC, Water Resources Division, Helena MT., 2013.

Willow Creek Dam Manual for Operation and Maintenance, DNRC State Water Projects Bureau, 1424 9th Avenue, P.O. Box 201601, Helena, MT 59620, Originally Published 1995, Revised 2005.

Climax Vegetation of Montana Based on Soils and Climate, U.S. Dept. of Agriculture, Soil Conservation Service, Bozeman, MT. September 1976.

Water Resources Survey, Madison County, MT, State Water Conservation Board, Helena, MT. June 1965.

9.0 - LIST OF PREPARERS

Tim Bryggman, DNRC – Market analysis (includes liability information)

Jim Domino, DNRC – Natural resources, socio-economic issues/impacts, MEPA compliance

Robert Kingery, DNRC - Project timeframes, administrative oversight

Mattie Murphy, DNRC – EA distribution

Fred Robinson, DNRC – Legal review and water rights

Kevin Smith, DNRC - Budgets, land issues, project timeframes, water rights, administrative supervision

Appendix A

Water Right

WILLOW CREEK RESERVOIR WATER RIGHTS

4/24/2008

	wr#	wr typ descr	status	purp cd hist rgt	prty dt	flow	flw unt vol	source name	qtr	sec tnsp-rnge
1	41G 119378-00	STATEMENT OF CLAIM	ACTV	IR FILE	1935-10-24		32792	WILLOW CREEK	swswsw	26 01S 01W

This claim is for water flowing into the reservoir for irrigation.

Claim 119378 was modified based on a stipulation between the .USA (BOR) and the DNRC -- see Case 41G-109.

Recommend that 119378 be retained and amended to SALE and further amended similar to the right at the Painted Rocks project.

2 41G 119379-00 STATEMENT OF CLAIM ACTV ST FILE 1935-10-24 WILLOW CREEK swswsw 26 01S 01W

This claim is for water flowing into the reservoir for stock. Claim 119379 was modified -- see Case 41G-110.

Recommend that 119379 be withdrawn. The stock use can be identified on 119378 and we would clarify the period of use for stock is year-round.

3 41G 119380-00 STATEMENT OF CLAIM ACTV IR FILE 193.5-10-24 5388 NORWEGIAN CREEK swswsw 26 01S 01W

This claim is for water flowing into the reservoir for irrigation.

Claim 11930 was modified based on a stipulation between the USA (BOR) and the DNRC -- see Case 41G-109.

Recommend that 119380 retained and amended to SALE and further amended similar to the right at the Painted Rocks project.

4 41G 119381-00 STATEMENT OF CLAIM ACTV ST FILE 1935-10-24 NORWEGIAN CREEK swswsw 26 01S 01W

This claim is for water flowing into the reservoir for stock. Claim 119379 was modified - see Case 41G-110.

Recommend that 119381 be withdrawn. The stock use can be identified on 119380 and we would clarify the period of use for stock is year-round.

5	41G 119382-00	IRRIGATION DISTRICT	ACTV	IR	FILE			WILLOW CREEK	swswsw	26	01S 01W
6	41G 119383-00	STATEMENT OF CLAIM	WDRN 7/30/1993	IR	FILE	1935-10-24	140 CFS	50361 WILLOW CREEK	swswsw	26	01S 01W
7	41G 119384-00	STATEMENT OF CLAIM	WDRN 7/30/1993	IR	FILE	1935-10-24	140 CFS	50361 WILLOW CREEK	swswsw	26	01S 01W

This group of claims is for water flow downstream of the reservoir to deliver water to the POU for IR.

Claims 119383 and 119384 were withdrawn based on a stipulation between the USA (BOR) and the DNRC -- see Case 41G-109. Recommend that claim 119382 be withdrawn.

8	41G 119385-00	IRRIGATION DISTRICT	ACTV	ST				WILLOW CREEK	swswsw	26 01S 01W
9	41G 119386-00	STATEMENT OF CLAIM	WDRN 5/2511993	ST	FILE	1935-10-24	10 CFS	331 WILLOW CREEK	swswsw	26 01S 01W
10	41G 119387-00	STATEMENT OF CLAIM	WDRN 5/25/1993	ST	FILE	1935-10-24	10 CFS	331 WILLOW CREEK	swswsw	26 01S 01W

This group of claims is for water flow downstream of the reservoir to deliver water to the POU for ST.
Claims 119386 and 119387 were withdrawn -- see Case 41G-110. Recommend that claim 119385 be withdrawn.

Appendix B

Photographs

Willow Creek Spillway

Willow Creek Dam's Upstream Face

Willow Creek Dam's Downstream Face

Willow Creek Dam Outlet

Appendix C

Market Analysis Report (with liability information)

WILLOW CREEK DAM AND RESERVOIR TRANSFER

MARKET VALUATION

By amending §85-1-211, MCA through Senate Bill 221, the 64th Montana Legislature directed DNRC to "attempt to dispose of the Willow Creek Dam project," subject to provisions of subsection (5)(a). Those provisions pertain to projects, such as Willow Creek, that are owned by DNRC and for which contracts are managed and money is collected by the Department. The provisions require that DNRC determine the "market value of the rights-of-way, easements, properties, or interests" subject to disposal. Section 85-1-211(5)(a), MCA further requires DNRC: to consider "all liens, encumbrances, and other limitations on the project properties and interests" in its determination of market value; to comply with the provisions of §85-6-109, MCA; and to give "purchase preference" to existing water users' associations operating and maintaining the project proposed for disposal.

As a State agency, DNRC's management of its projects is prescribed extensively by statute and rule. DNRC markets water from its 20 water storage projects at cost primarily to water users' associations, mostly relying on public funds for management and rehabilitation expenses and bearing various levels of risk in the operation, maintenance, and management of its projects. Typically, water users' associations operate and maintain the projects and distribute water to association shareholders.

The circumstances surrounding the disposal of the Willow Creek project are different from those related to most market transactions in that DNRC is compelled by statute to attempt to dispose of the project, its opportunities to market water from the project and to dispose of the project are limited, and the transfer of the project may include limitations on the use of the project. A discussion of the market value of a water project owned by DNRC that has been proposed for disposal includes the consideration of a number of factors: the identification of the assets and liabilities subject to disposal; the terms of a potential transaction; the legal constraints on the management and disposal of property owned by DNRC; and the notion of market value with respect to water projects.

Project Properties Proposed for Disposal[1]

Willow Creek Dam is located in Madison County, impounding Willow, Dry Hollow, and Norwegian Creeks. The dam is an earth and rock fill embankment with an uncontrolled ogee-crest concrete chute spillway, a two-gate control system, and a 362-foot-long concrete outlet

[1] "Draft Environmental Assessment: Willow Creek Dam and Reservoir Transfer", DNRC State Water Projects Bureau (2015), provides descriptions of the proposed action, the project properties, and the affected environment.

conduit. Reservoir storage capacity at full pool has been estimated recently to be 18,000 acre-feet.

The project is classified as a "high hazard" structure which means that failure of the dam could cause loss of life. The 2014 Periodic Inspection Report notes that the spillway does not meet Montana dam safety capacity requirements and that it is structurally compromised due to concrete deterioration. The report recommends that the required spillway capacity should be updated using currently accepted methods and that alternatives should be developed to bring the spillway into compliance with dam safety requirements. Based on recent construction activity for DNRC projects, the cost of rehabilitating the spillway at Willow Creek would cost approximately $5 million.

Ownership of the Willow Creek Dam project is accompanied by the assumption of risk and liability for a high hazard project that provides access to the public and by the responsibility for all project costs—especially those required to comply with applicable dam safety rules and regulations. While a catastrophic dam failure may have a low probability of occurring, in the event of such an incident, "potential inundation areas include portions of Willow Creek, Three Forks, and Townsend. Local railways and highways, including I-90 would also likely be inundated…More detailed analysis is necessary to insure that both the spillway capacity, structural condition, and other dam elements are in compliance with current standards and Dam Safety requirements. The dam is regulated by the State Dam Safety Program (DNRC WRD Water Operations Bureau) and subject to the requirements of the Montana Dam Safety Act as administered by DNRC."[2]

Claims against the owner or operator of the project may arise from incidents involving members of the public engaged in activities at the project, from damages resulting from operation of the project, or from damages resulting from dam failure. Statutory limits for tort liability of the State of Montana are $1.5 million per occurrence and $750,000 per claim. The owner of the project may bear other forms of liability under various authorities for potential damages resulting, for example, from project operations that damage habitat or impair water quality downstream of the project. Liability for the risk of dam failure may be mitigated by ensuring that maintenance and rehabilitation efforts are sufficient or by other means such as reducing storage levels. Regardless of the ownership of the project and the risk mitigation measures taken by the project owners, the risk for damages from inundation by project water is borne to a substantial degree by parties located in potential inundation areas.

The Willow Creek Water Users Association (WCWUA) has operated the project since construction was completed in 1938. The project serves 149 contracts with 11,885 acre-feet of water primarily for supplemental irrigation of hay and alfalfa.

[2] DNRC State Water Projects Bureau, p. 11. Additional information about project risk can be found in the Emergency Action Plan included with the EA.

Montana Fish, Wildlife and Parks (MFWP) owns and manages the fishing access site and surrounding land on the west shore of the reservoir that is accessed by a county road. MFWP's most recent angling pressure survey reports 4,540 angling days at Willow Creek Reservoir for the year ending in February 2012—evenly split between the summer (2,383 days) and winter (2,158 days) seasons.[3] Rights-of-way and easements are being proposed to provide the public with access to the reservoir and to lands surrounding the project. Recreational use also includes boating to the dam face from the fishing access site to hike down to Willow Creek.

The access road to the dam through private property on the east side of the reservoir is for administrative use and not available to the public. Access to the dam is through an easement. Only lands necessary for operation of the project are being proposed for transfer.

Operation of the project relies primarily on two water rights for irrigation and storage uses, each with a priority date of 1935 and a combined volume of 38,180 acre-feet. These rights have been determined in Case No. 41G-109 before the Montana Water Court for year-round diversion to storage and for release during the irrigation season. The project and the lands it serves are located in basins subject to basin closures for the Jefferson (§85-2-341, MCA) and for the upper Missouri (§85-2-343, MCA). These closures prohibit new appropriations except for uses including municipal, domestic, and storage of high spring flows. The closure for the upper Missouri remains in effect until final decrees have been issued for all of the subbasins of the upper Missouri basin. Small water rights for stock would also transfer with the project.

Limitations and Interests Related to Properties[4]

DNRC is proposing a no-fee transfer of the project to WCWUA subject to the following conditions:

- WCWUA would assume all project costs, liabilities, and other ownership issues, including the responsibility to comply with applicable dam safety rules and regulations;
- The project shall not be operated for profit. Project revenues shall be dedicated to costs of operations, maintenance, repair, rehabilitation, and safety;
- Project ownership would revert to DNRC in the event that the new owner failed to comply with dam safety regulations;
- Development would not be permitted on the transferred property;
- The project site would remain open to the public for recreational purposes;
- WCWUA would conduct a property boundary survey;

[3] Montana Fish Wildlife and Parks, 2012, "Montana Statewide Angling Pressure Survey: 2011"; http://fwp.mt.gov/fishing/anglingPressureSurveys/2011.html; Accessed June 2015.
[4] DNRC State Water Projects Bureau, pp.3-4.

- The property boundary adjacent to the MFWP Fishing Access Site shall be relocated to ensure that MFWP ownership and public access extend into the reservoir.

Essentially, the terms of the transfer would: assign responsibility for all project costs, liabilities, and regulatory compliance; maintain existing recreational access; limit operations to activities dedicated to the recovery of project costs; and prohibit the development of project lands.

The loan for original construction costs has been repaid. No liens or debt are attached to the project.

Markets for Water Projects in Montana

The mandate to determine market value can be distinguished from the charge to determine other forms of economic value such as that required in MCA §85-1-207 to consider the "value of public benefits" in the determination of the costs of constructing or repairing State water projects. An evaluation of public benefits might include values associated with flood control, recreation, environmental goods and services, or other non-market goods. The mandate to determine the market value of a State project implies that an arm's length transaction is possible among multiple, potential willing buyers and sellers each with informed consideration of available substitutes and the opportunity costs of resources. Further, the mandate would seem to imply that market conditions are sufficient to determine the value of a project such as Willow Creek in light of competition among various potential users of the project or that information from market transactions involving similar projects is available.

While thousands of dams and water projects of various types and sizes are found throughout Montana, markets for water resource projects—collectively or for individual projects—are very limited. Primarily this is due to the geographic constraints on and the site-specific nature of water projects compared to other commodities. The sparse information from the rare transactions that do occur is likely to be of little relevance to the transfer of State projects.

For most small projects, project ownership is shared with ownership of the lands served by a particular project. In those cases, project values would likely be capitalized into land values. When transactions for this type of project do occur, the transactions likely involve the transfer of broader property interests or the rearrangement of ownership among joint owners. In these instances, the scope of the market for a particular project is site-specific and limited in the extreme and could be characterized as a bilateral monopoly. For a bilateral monopoly, a transaction results from negotiations between a single buyer and a single seller rather than from competition among multiple buyers and sellers as in more robust markets for other commodities.

In contrast, the sale of MPC's dams and related properties as part of its power generation system to PPL Montana and NorthWestern Energy's subsequent purchase of PPL Montana's

hydropower facilities in 2014 represent project transactions of a significantly different type and scale. While those dams must be managed to address risks and regulations that are generally common to most dams, the opportunities to capture market value related to the profitable potential of those assets are far less constrained than those available to DNRC and other irrigation project owners.

The absence of active markets for irrigation projects does not mean that the services or components of projects do not have potential market value. A water project such as Willow Creek has value for water users to the extent that the project alters the river flows so that water supplies can be captured when flows are relatively abundant and distributed at times when water is scarce. Water storage projects have the potential to increase the supply of an important input to the production of hay or other irrigated crops, for domestic, municipal and industrial supplies, for hydropower production, and for mitigation, instream flow, and other uses. In this respect, the demand for project water is a derived demand in that demand for water is determined by the final product for which project water is an input. Some of these products may be exchanged in markets. The value of project water to water users, therefore, may be inferred by estimating the value of the contribution of project water in the production of the final products of water users' operations.[5] The value of project water to water users would be determined additionally by the availability of alternative sources of water through means such as other storage projects or water rights providing supplies of water of comparable amount, timing, and quality to those provided by the project.

Components of project properties may have market value if severed from a project. Parties may be interested in obtaining project properties such as water rights, land, rights-of-way, or easements by lease or sale. Markets for some of these project components, such as water rights, may be absent or minimally functional.

Also, the market value of a project would need to be adjusted for the perceived levels of liability and risk that would accompany the transfer of ownership of the project to a new owner.

Markets for State Water Projects

The market valuation of a State project should consider the market for a project owned by DNRC given the constraints on ownership and disposal of State projects. The valuation should also consider the potential markets for project properties available to purchasers of a project in order to identify arbitrage opportunities for the purchaser and to avert the transfer of public resources without adequately compensating Montana taxpayers.

[5] For example, if project water were to allow for an additional cutting of hay that otherwise could not be produced, then water users presumably would be willing to pay an amount up to the net value of the additional cutting of hay.

The legal issues and obligations pertaining to DNRC in selling its active water storage projects and lands adjacent to those storage projects are presented in Robinson (2008)[6]. The statutory definitions of the terms "Project" and "Works" are presented as a combination of property and rights, easements, franchises, and water rights "jointly managed and operated as a single unit." The memo concludes that water users' associations "have considerable leverage over project sales" by virtue of prevailing statutes, administrative rules, and contractual obligations that grant purchase preference and other privileges to water users' associations and constrain opportunities for DNRC to sell projects to other parties. For the sale of adjacent lands deemed "unnecessary" for a project, however, DNRC "has the authority to make the sale without restriction from the water users' association or other governmental requirements." The statutes of particular relevance for the disposition of the Willow Creek project are §85-1-210, MCA and §85-1-211, MCA. Presumably, the form of disposition may be by any of various means, including sale or no-fee transfer.

Given the constraints upon DNRC described in Robinson (2008), there is some question as to whether the criteria for a market transaction can be met. That memo identifies limitations on DNRC's opportunities to market water from and to dispose of its projects. In addition to the nature of the assets, the restrictions placed on DNRC's ownership of its projects severely constrain the extent of the market for a DNRC project. In sum, those restrictions require that project water be provided to water users' associations at cost within a limited place of use and preference must be given to a project's water users' association in the event that disposal of a project is under consideration.

In transactions involving the transfer of a project or the sale of water, DNRC and a water users' association effectively comprise a bilateral monopoly with DNRC's ability to negotiate constrained by limits imposed by statute and rule. Unless prohibited by the Legislature with respect to particular projects, however, DNRC may impose terms on a transfer that could limit the market value of a project following its transfer to another party. Those limitations may take the form of covenants, easements, or other deed restrictions included in the transfer documents.

Market Valuation for the Willow Creek Dam Project

While a market valuation of a State water project poses several challenges, a market valuation of the Willow Creek Dam project is simplified by the limited prospects in capturing market values for project water or for project properties under the terms of the proposed transfer. As proposed, the terms of the transfer would assign the project with full responsibility for project costs and liabilities to WCWUA, protect existing recreational opportunities at the site, limit operations to

[6] Robinson, F. 2008. Memorandum of December 18, 2008. Department of Natural Resources and Conservation. Helena, Montana.

activities dedicated to the recovery of project costs, and prohibit the development of project lands. By assuming the project under these terms, WCWUA would assume the liabilities of project ownership while foregoing most opportunities to capture values potentially available through market exchanges for project properties that might be available in the absence of these terms.

Project Water

The location of the Willow Creek project, its ability to store water throughout the year, and the relative seniority of its water rights make it a potentially valuable resource in the closed Jefferson and upper Missouri Basins. Geographic constraints and the absence of robust water right markets in the basin, however, limit the potential market value of project water at present. Over the remaining life of the project, conditions may change as water right markets mature, as the population between Three Forks and Townsend grows, or as demand for instream flows increase in these closed basins.

Currently, irrigators in the vicinity of the project in the Willow Creek drainage have access to project water. Very little land in the project area that could feasibly be irrigated remains to be brought under irrigation. While project water is essentially fully allocated, transactions for outstanding shares of project water do occur on occasion with the approval of the board of the WCWUA. Presumably, those seeking irrigation water from the project could attempt to obtain shares if they so desired.

While the bylaws and water rights for some of DNRC's storage projects allow project shares to be transferred to uses other than irrigation, such opportunities have been quite limited for Willow Creek shareholders. These types of transactions may be possible under the proposed transfer. Given Willow Creek's confluence with the Jefferson fairly low in that basin, however, the Willow Creek project is unable to contribute water to serve instream flow, irrigation, and other demands further upstream along the Jefferson or along the Madison and the Gallatin where increasing demands strain available supplies. Project water may be able to mitigate new uses around Three Forks and between Toston and Townsend. For mitigation of effects to senior water rights along the Missouri, project water would be competing with other senior water rights, groundwater sources, and projects such as Canyon Ferry. There is no evidence of demand for water for instream flows below the Willow Creek project currently.

In order to meet water demands of uses other than those of current project water users, the effective delivery of project water would need to be demonstrated and the project's water rights would need to be changed to allow for the marketing of water to new uses. Also, under the terms of the project transfer, marketing of project water would be restricted to transactions returning no more than the recovery of project costs. Further, any marketing efforts would entail some level of cost and the market potential of project water is highly uncertain. The present value of the

potential market value of project water—if any—would need to be discounted by the costs and uncertainty associated with those marketing efforts.

Liability

As described earlier, the transfer of project properties would also include the transfer of liability for potential claims against owners of the project. These claims may arise from incidents involving members of the public engaged in activities at the project, from damages resulting from operation of the project, or from damages to potential inundation areas previously identified that could result from dam failure. While some of these incidents—such as dam failure—may be highly improbable, claims for damages related to such events are likely to be of considerable magnitude.

To some degree, the liability of dam ownership can be mitigated through compliance with the requirements of the Montana Dam Safety Act. Presumably, failure to comply with dam safety regulations would result in restrictions including the reduction of risk through the imposition of limits on storage levels or the reversion of ownership to DNRC. Regulatory compliance will continue to be required of any owner of the project.

Other means of managing liability might include insurance coverage or formation of an entity, such as an irrigation district, with limits on liability. Quite likely, WCWUA currently has some form of insurance protection against liabilities related to its operation and maintenance of the project. Because the statutory limits for tort liability applied to agencies of the State of Montana and to irrigation districts do not apply to water users associations, WCWUA would assume a level of liability beyond that currently borne by DNRC with respect to the Willow Creek project. WCWUA would need to insure against claims for damages substantially greater than $1.5 million for each occurrence. The market value of the project would be diminished significantly for WCWUA or any subsequent owner by the cost of assuming the liability associated with ownership of the project.

Easements and Rights-of-Way

No easements or rights-of-way, or potential easements or potential rights-of-way, for access to properties in the area that may have any market value have been identified.

Conclusion

While the Willow Creek Dam project continues to provide economic benefits to project users, to nearby communities, and to the state, the absence of functioning markets for water projects as well as the constraints on the project's use and potential transfer significantly limit the market value of the project to DNRC. The limited market prospects for project water and water rights, prohibitions on the development of project lands, and the assumption of the liability and risk that accompany project ownership substantially diminish the market value of the project for any subsequent owner of the Willow Creek project. At some point over the remaining life of the project, demand for water in the upper Missouri Basin may be sufficient to provide market opportunities for the project's water and water rights. Those prospects should be discounted at present to reflect the uncertainty associated with the development of suitable market and institutional conditions that would be required for the project to realize profitable returns from the marketing of its water or water rights.

Appendix D

Fisheries Information

Willow Creek Reservoir
HUC: Jefferson (10020005)
Tributary To: Willow Creek
Regions: Region 3
Counties: Madison

Location Information

Latitude: 45.70458 **Township:** 02S
Longitude: -111.70334 **Range:** 01W
Elevation: 4,746 ft. **Section:** 3
Mountain Range: Not in a Mtn Range

Ownership Information

Public Land Ownership: 2 %
National Forest: Not in a NF
Ranger District: Not in a NF
Wilderness Area: Not in Wilderness Area

Physical Information

Surface Area: 713 acres **Max. Depth:** N/A
Shore Length: 13.77 mi. **Avg. Depth:** N/A
Surface Temp.: N/A **Volume:** N/A
Trophic Status: Unknown **Formation:** Unknown
Shore Cover: N/A **Winter Kill:** No

Access Information

Trailhead
Name: N/A
Directions to Lake: N/A
Total Distance.: N/A
Distance on Trail: N/A
Ingress: Almost entirely public lands
Esthetics: Unknown

Fish Distribution Download Data

Begin Mile	End Mile	Species	Abundance	Use Type	Life History	Origin	Genetic Status	Data Rating	Data Source
0	1	Brown Trout	Rare	Year-round resident	Unknown	Introduced	Not Applicable	No Survey, Professional judgment	FWP
0	1	Longnose Sucker	Common	Year-round resident	Resident	Native	Not Applicable	No Survey, Professional judgment	FWP
0	1	Rainbow Trout	Common	Year-round resident	Resident	Introduced	Not Applicable	No Survey, Professional judgment	FWP
0	1	Westslope Cutthroat Trout	Common	Unknown	Unknown	Reintroduced	Potentially hybridized with records of contaminating species	No Survey, Professional judgment	UN
0	1	White Sucker	Common	Year-round resident	Resident	Native	Not Applicable	No Survey, Professional judgment	FWP

Fish Stocking Download Data

Kokanee			
Date	Number of Fish	Avg. Length(in.)	Hatchery
5/15/2014	10,116	2.64	Big Springs Trout Hatchery
Rainbow Trout			
Date	Number of Fish	Avg. Length(in.)	Hatchery
10/2/2008	10,450	2.8	Ennis National Fish Hatchery
10/15/2007	9,871	3.73	Ennis National Fish Hatchery
9/24/2007	10,820	4.32	Ennis National Fish Hatchery
10/27/2005	16,114	4.18	Ennis National Fish Hatchery

Angling Days Per Year Download Data

	Total		Resident		Non Resident		Ranking	
Year	Days Fished(+-S.D.)	Trips	Days Fished(+-S.D.)	Trips	Days Fished(+-S.D.)	Trips	State	Region
2009	3,837 (+- 774)	68	2,994 (+- 595)	59	843 (+- 495)	9	139	29
2007	5,692 (+- 1,753)	54	5,692 (+- 1,753)	54	(+-)		92	21
2005	3,766 (+- 962)	65	3,346 (+- 866)	59	420 (+- 420)	6	129	27

Appendix E

Fact Sheet

WILLOW CREEK DAM

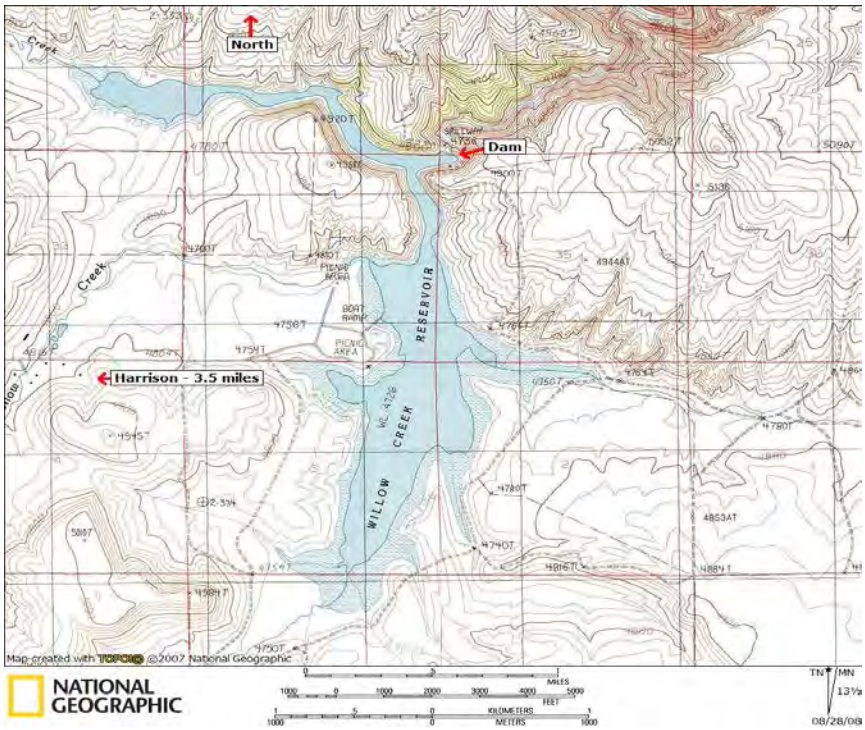
Fact Sheet

PROJECT DESCRIPTION

- Located in Madison County, 3.5 miles east of Harrison; impounds Willow, Dry Hollow, and Norwegian Creeks
- Construction completed in 1938
- Owned by DNRC and managed by SWPB
- Operated by Willow Creek Water Users Association since 1938
- Project consists of:
  - 105 foot-high, 453 foot- long, zoned earth and rock fill dam
  - Uncontrolled ogee crest concrete chute spillway
  - 60-inch horseshoe shaped 362 foot-long concrete outlet conduit
  - One 54-inch main butterfly operating gate and one 54-inch guard gate
- Storage at full pool is 18,000 acre-feet, covering 885 surface acres
- The dam is a "high hazard" structure which means that its failure could cause loss of life. Farms, ranches, roads, bridges, and utilities are located in the flood plain.

WATER USE

- 149 contracts for 11,885 acre-feet of water
- Water is primarily used for irrigation; however, the reservoir is also used for water-based recreation. MT Fish, Wildlife, and Parks manages a fishing access site on the west shore of the reservoir under a DNRC lease.



October 2014

REHABILITATION SUMMARY

- Various maintenance activities are ongoing.

FUTURE NEEDS

- The spillway does not meet current safety standards and is not capable of passing the design flood event. Concrete deterioration exists in the spillway wall and floors. The spillway will require future replacement.
- The road around the reservoir that is used to access the dam and gate tower is difficult and sometimes impossible to navigate.
- Investigations are ongoing to determine whether the embankment meets seismic stability criteria.

Upstream face

Downstream face

Spillway

Outlet

Appendix F

SHPO Site Report

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
HISTORIC CULTURAL RESOURCE SITE FORM

I. IDENTIFICATION: Smithsonian No.: 24MA2088 **Field No.:** WCR
DNRC Project No: **Project Name:** Willow Creek Reservoir

II. LOCATION: State: MT **County:** Madison
Land Status: State (General State Lands administered by the DNRC)
7.5' USGS Map: Willow Creek Reservoir, MT (1988)
Legal Description: A portion of the SWSWSW1/4 of Section 26, T1S R1W;
A portion of the S1/2 of Section 27, T1S R1W;
A portion of the SE1/4 of Section 28, T1S R1W;
A portion of the E1/2 of Section 34, T1S R1W;
A portion of the W1/2SW1/4 of Section 35, T1S R1W;
A portion of the W1/2NW1/4 of Section 2, T2S R1W;
A portion of the E1/2 of Section 3, T2S R1W;
A portion of the N1/2N1/2 of Section 10, T2S R1W.

UTM (Dam Center): Zone 12; Datum: NAD 83 conus; 445,550 **mE;** 5,062,540 **mN**

III. ACCESS: From Harrison, Montana travel easterly ca. 3.5 miles to the site area.

IV. TYPE: Zoned earth and rock fill dam and associated concrete chute spillway a small gatehouse with two valve structures, a concrete and cast iron lined outlet conduit, and a reservoir with a storage capacity at maximum pool of 26,600-acre feet.

V. APPARENT PERIOD OF SITE USAGE OR CONSTRUCTION: Constructed in 1938 and still in use.
Dating Potential: Excellent

VI. SITE DIMENSIONS: The site is contained within an area which measures ca. 3900 m N/S x 2500 m E/W in maximum overall dimension. Site boundaries were arbitrarily established based on the visible extent of the dam and associated features. The Willow Creek Reservoir Dam has structural and hydraulic heights of 105 ft, a crest length of 453 ft, and a crest width of 28 ft. The concrete spillway is 50 ft wide and has walls that are 6 ft in height and 8 ft thick. The cast iron outlet conduit is 60 inches in diameter and 362 ft in length. The two gate valves controlled from the gate house consist of a 54-inch butterfly valve and a 54-inch emergency gate valve.

Methods Used: Visual inspection, construction/topographic maps and technical specifications
Surface Visibility: 90% **Depth of Cultural Remains:** N/A **Associated Sites:** N/A

VII. DESCRIPTION (integrity, previous disturbance, description of materials observed): The Willow Creek Dam and Reservoir is owned by the State of Montana Department of Natural Resources and Conservation and operated by the Willow Creek Water Users Association. The reservoir is primarily utilized for irrigation purposes, but it is also a popular recreational site, with a developed fishing access site at the west side of the reservoir that is maintained by the Montana Department of Fish, Wildlife and Parks. The design for the dam was developed by the State water Conservation Board from 1934 to 1936. Construction began in 1937 and was completed in 1938. Funding for the project was provided by the Federal Public Works Administration. In 1944, a severe flood eroded the unlined spillway channel. Plans for the present spillway were developed by the State Water Conservation Board, and a new concrete spillway was constructed in 1944 and 1945. The reservoir storage capacity at maximum pool is 26,600-acre feet. The reservoir has a natural drainage area of 155 square miles and a surface area of about 885 acres at normal pool. The reservoir is easily accessed from a main gravel road on the west side of the reservoir. The dam is not visible from the access road or the developed fishing access site.

The State Water Conservation Board (SWCB), and the Willow Creek Reservoir project, were financed by the Public Works Administration (PWA). The SWCB was formed in 1934 to alleviate high unemployment caused by the national depression era. The SWCB also was charged with developing water conservation projects that would abate the severe conditions brought on by the drought in Montana. With the creation of the SWCB, Montana became the only state to receive funds for the construction of dams through the PWA program. The SWCB received funding for the project in the form of a loan and grant from the PWA.

An inspection report completed in 1980 by the Army Corps of Engineers indicated that the dam shows insufficient storage and discharge capacity to safely handle recommended potential flood levels. The spillway was found seriously inadequate. The dam has been classified as unsafe and a high hazard until such deficiencies are corrected. A high hazard dam indicates a high potential for loss of life and/or serious property damage downstream should the dam fail.

VIII. WATER (leave blank if more than 1 mile from the site):

Permanent (name): Willow Creek
Elevation: 4730 ft/ 1442 m ASL
Distance and Direction from Site: At the NW margin of the reservoir

Permanent (name): Norwegian Creek
Elevation: 4750 ft/ 1448 m ASL
Distance and Direction from Site: At the S margin of the reservoir

Ephmeral (name): Unnamed drainage
Elevation: 4730 ft/ 1442 m ASL
Distance and Direction from Site: At the E side of the reservoir

IX. TOPOGRAPHY: Willow Creek Dam is located on Willow Creek in the western part of the Three Forks Basin. The dam is in rolling hill country between the Tobacco Root Mountain to the west and the Madison Range to the east. Elevations range from 4645 at the dam crest to 6,400 feet in the two adjacent mountain ranges.

Site Elevation (Dam Crest): 4645 ft/1416 m ASL

X. GEOLOGY AND SOILS: The dam is founded on precambrian metamorphic rock consisting of mostly gneiss and mafic sills. Soils in the vicinity of the dam are predominately Shurley very flaggy course sandy loam, intermixed with rock outcrops of gneiss, schist and granite. This soil type is characteristically deep and well drained. (Veseth and Montagne 1980).

XI. VEGETATION: The area is mostly rolling rangeland, with the predominant grasses being bluebunch wheatgrass, western wheatgrass, needle-and-thread and threadleaf sedge. Sagebrush is also common throughout the area. Tree species include Douglas fir and western juniper, with aspen and cottonwood found in drainages and sheltered areas with sufficient soil moisture.

XII. MANAGEMENT DATA:

A. X **Recorded** **Collected** X **Mapped** **Shovel/Auger Probed** **Excavated**
Stabilized **Other (explain):**

Detail the level of testing or research carried out: A general visual inspection and a detailed literature review were carried out.

Artifact Repository: N/A

B. Project Impacts: The Willow Creek Reservoir and Dam will be maintained and operated into the foreseeable future. Major rehabilitation work will most likely be completed in the next five years to correct serious structural deficiencies and reduce the threat to public safety downstream from the dam.

Other Impacts: None presently recognized.

C. National Register Eligibility: Recommended as eligible under Criterion A.

Discussion of Significance: As indicated on page 12 of National Park Service Bulletin #15 (NRB 15) a property can be considered significant in association with Criterion A if a relationship between the site and a significant event or pattern of events within a defined time period can be demonstrated. Additionally, "Mere association with historic

events or trends is not enough, in and of itself, to qualify under Criterion A (NRB 15:12)". The Willow Creek Dam and Reservoir are generally associated with agricultural development in the west, in the sense that it is part of ongoing agricultural practices in the region. However, construction of the Reservoir did not cause people to settle, and take up agriculture, in the lower Madison River valley. The Madison River valley was being settled for several decades prior to the construction of the Willow Creek Dam and Reservoir. Undoubtedly, construction of the Reservoir had some stabilizing effect on agriculture in the general area by supplying a constant flow of water over the summer months. How great that effect has been is difficult to determine as the number of individuals utilizing water from the Reservoir and the Madison River for agricultural purposes has not increased appreciably from the 1910's to 1950 (Water Resources Database for Water Rights Filings). The significance of the site is that it is one of many projects associated with the PWA which arose during the FDR New Deal administration. Further, the Dam is a SWCB project and the SWCB not only formed as a result of the PWA, but is also unique to Montana and Montana State water conservation efforts. Because of that connection, the site appears to be significant in association with Criterion A.

A property is considered significant in association with Criterion B if a link between the site and a person significant in local, regional, or national history or prehistory can be demonstrated (NRB 15:14). Because no such connection can be made, the site is recommended as insignificant in association with Criterion B.

A property can be considered significant in association with Criterion C if it can be demonstrated to, "Embody distinctive characteristics of a type, period, or method of construction (NRB 15:18)." In order for a property to meet that requirement it must exhibit a sufficient number of" distinctive characteristics" representative of a particular method of construction. Further, "Characteristics can be expressed in terms such as form, proportion, structure, plan, style, or materials. They can be general, referring to ideas of design and construction such as basic plan or form... (NRB 15:18)". Although Criterion C may be the most subjective of the NPS criteria, it is hard to imagine that common, small scale earthen dams were intended to be considered architecturally significant. Further, no unusual aspects such as unique engineering feats, or ethnic or temporally specific architecture was used to construct the dam. Because of this, the site is recommended as insignificant in association with Criterion C.

Finally, a property is considered significant in association with Criterion D if it has yielded, or may be likely to yield, information important in prehistory or history (NRB 15:21). To date, no deposits associated with a possible Dam construction camp have been identified, and the technical aspects of the dam are well documented. However, even if deposits associated with a Dam construction camp were identified, it is unclear what relevant research questions could be addressed with associated cultural materials to provide a better understanding of important or unknown aspects of activities associated with small scale dam construction. Further, there is little chance that the aspects of dam construction can provide meaningful information beyond what is already known about the site. As such, the site is recommended as insignificant in association with Criterion D.

Discussion of Integrity: The site retains integrity of location, design, setting, materials, workmanship and association. Integrity of feeling, however, is not readily apparent. Based on the previous analysis, the site is recommended as significant for it's association with Criterion A and it appears to retain sufficient integrity to make the site eligible for listing in the National Register of Historic Places.

D. **Known Collections, Publications, or Reports Pertaining to this Site:** None known.

E. References Cited:

Veseth, R. and C. Montagne
1980 Geologic Parent Materials of Montana Soils. Montana State University and USDA-Soil Conservation Service *Bulletin 721*. November, 1980.

F. Photographs: See attached

G. Recorder: J. Domino and P. Rennie **Date:** 4-13-2004

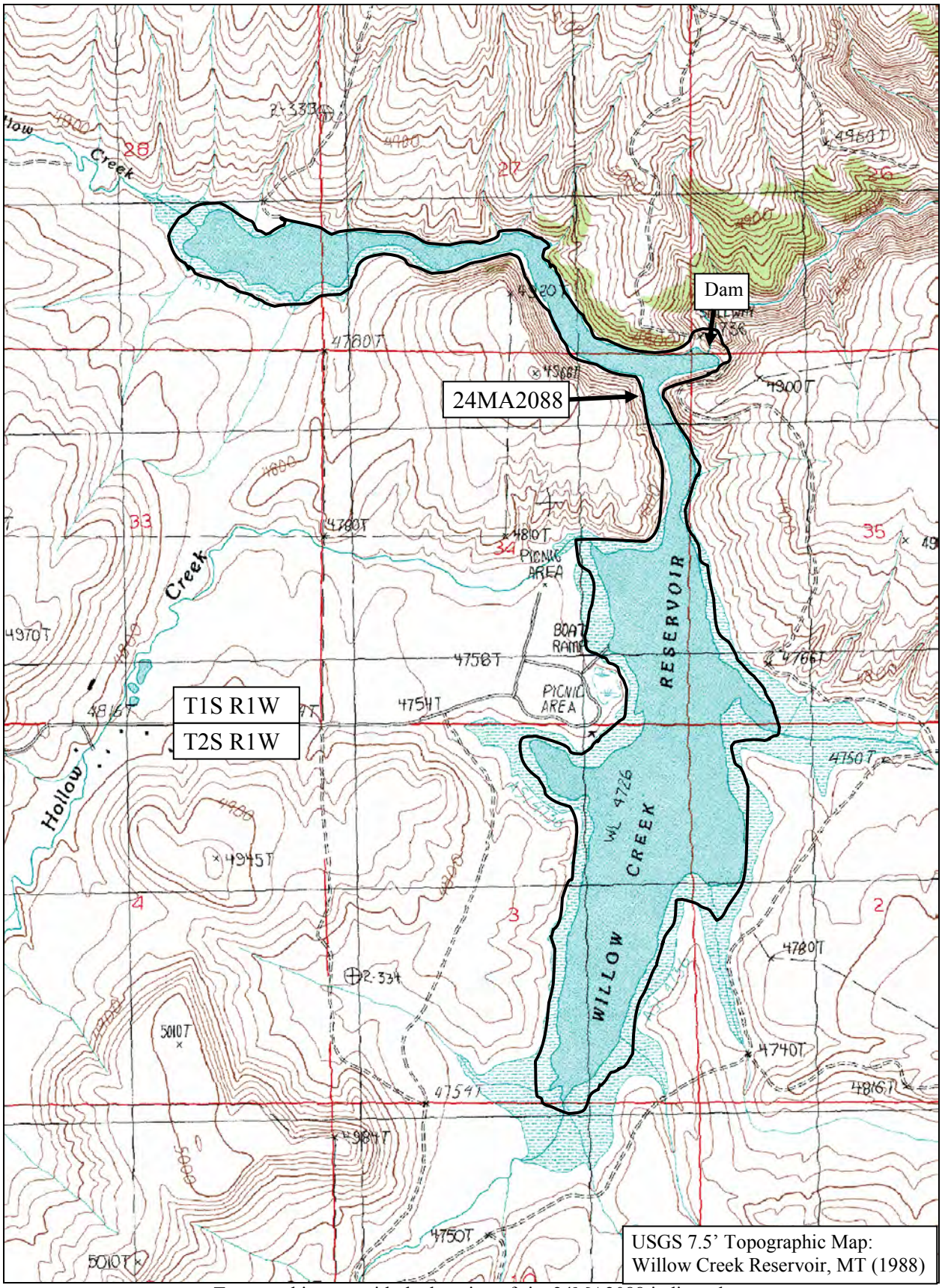
H. Map: Attach Site Sketch map (if applicable) and Photocopy of 7.5' Quad

View looking SW at the dam outlet at site 24MA2088.

View looking SW at the spillway at site 24MA2088.

View looking NW at the upstream face of the dam at site 24MA2088.

View looking NW at the downstream face of the dam at site 24MA2088.



Topographic map with the location of site 24MA2088 indicated.

Appendix G

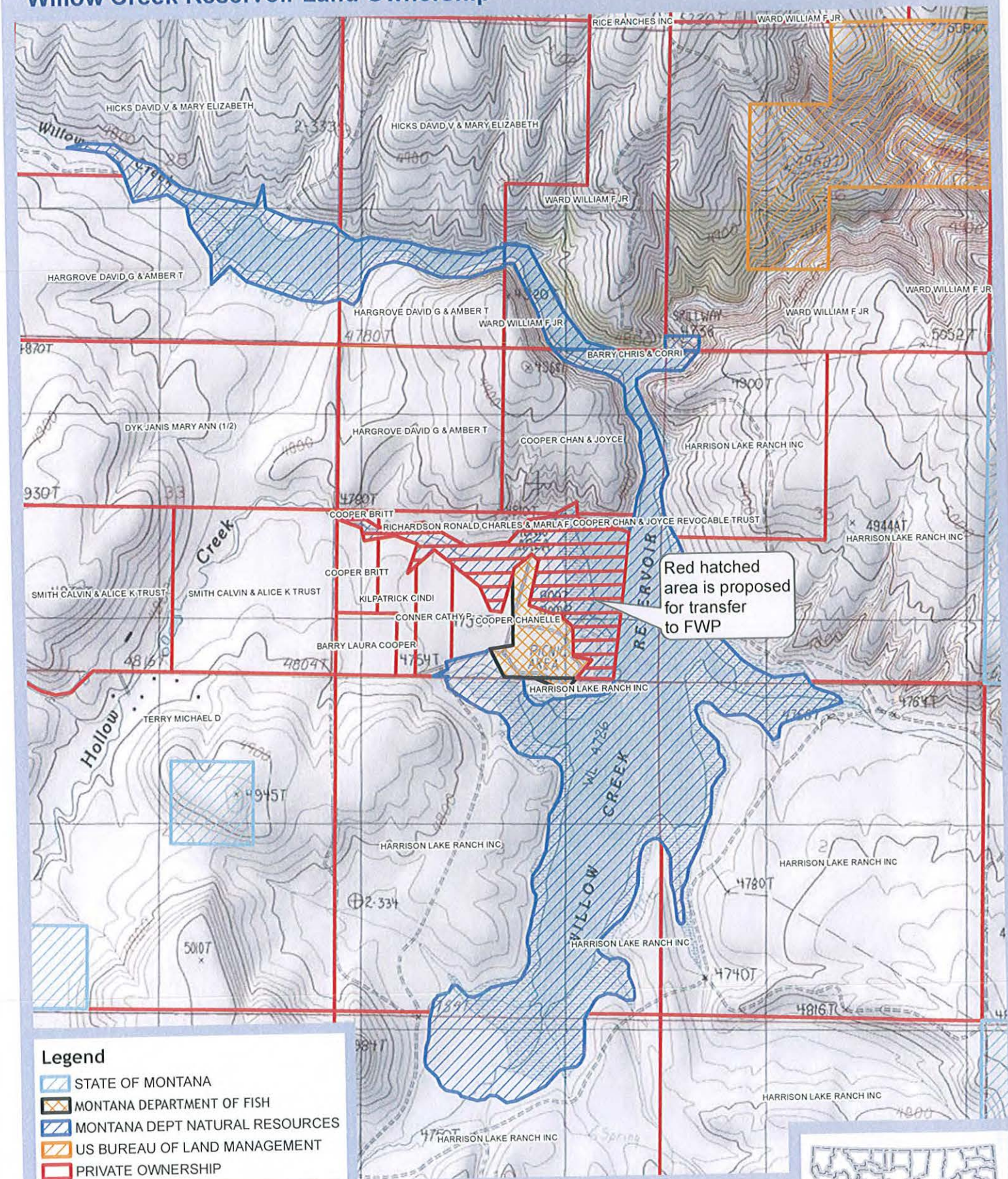
Site Map

DNRC-SWPB Property Boundary (approximately follows reservoir shoreline)
Willow Creek Reservoir
© 2015 Google
Google earth

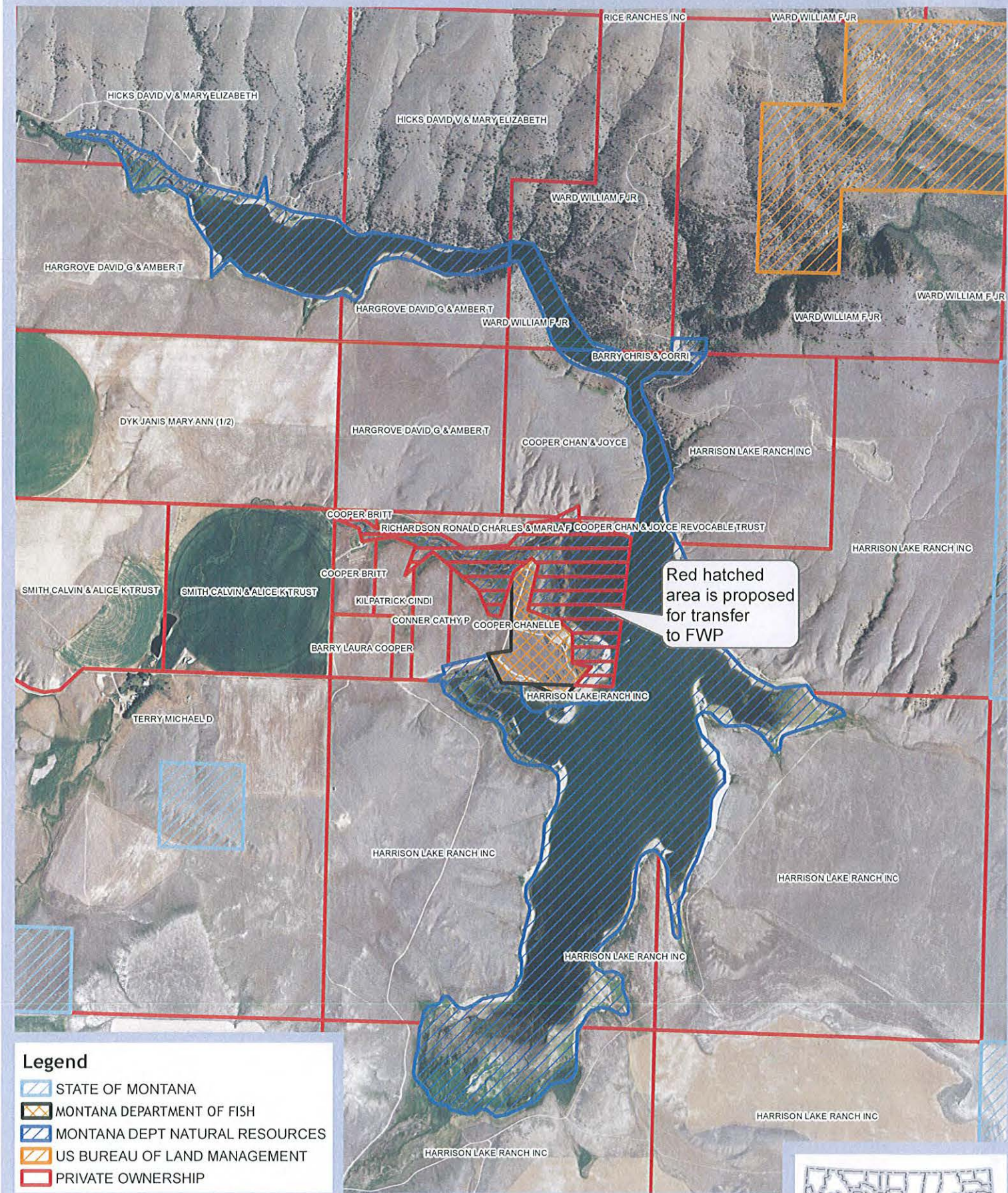
Appendix H

Property Ownership

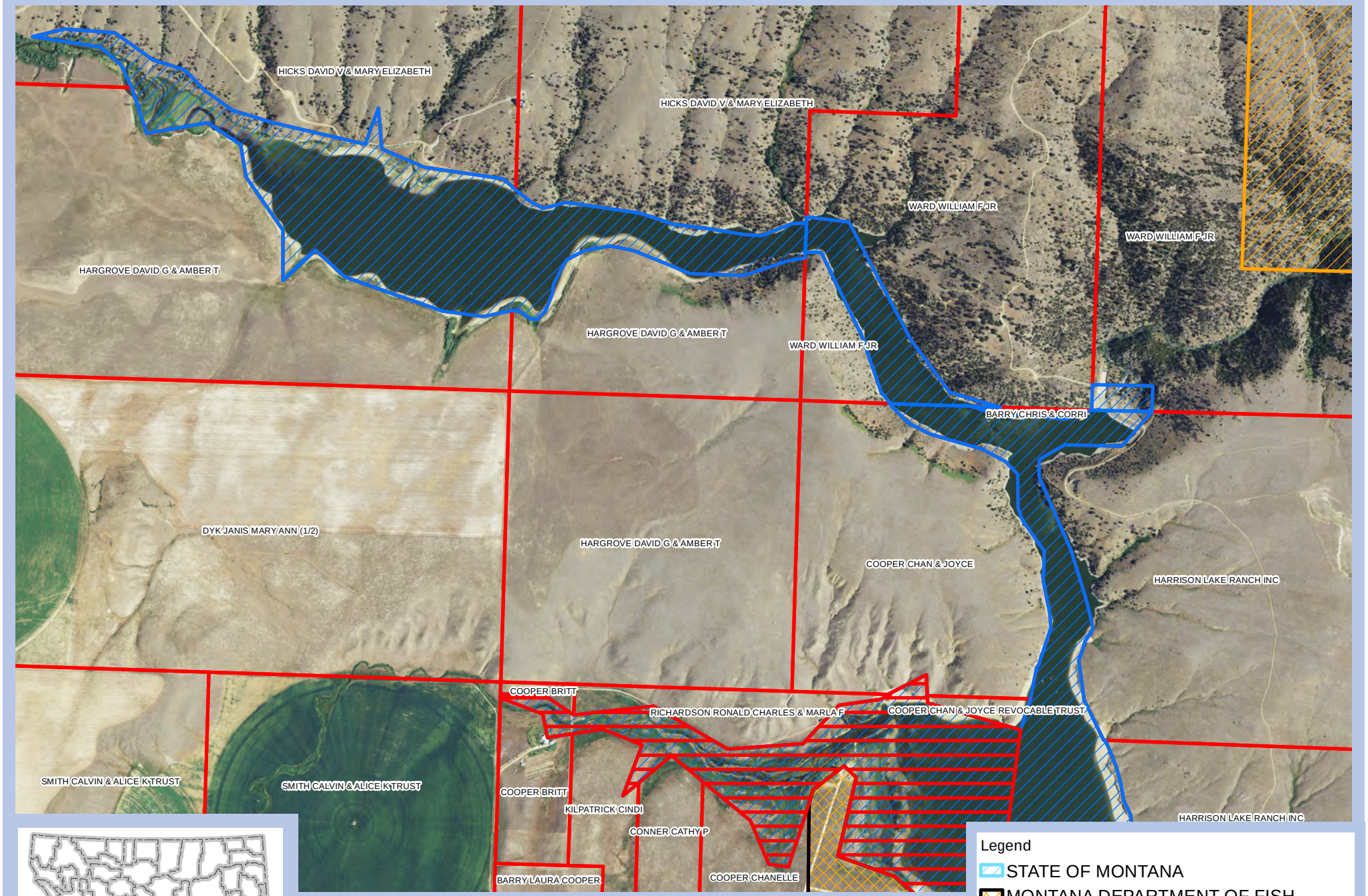
Willow Creek Reservoir Land Ownership



Willow Creek Reservoir Land Ownership



Willow Creek Reservoir Land Ownership



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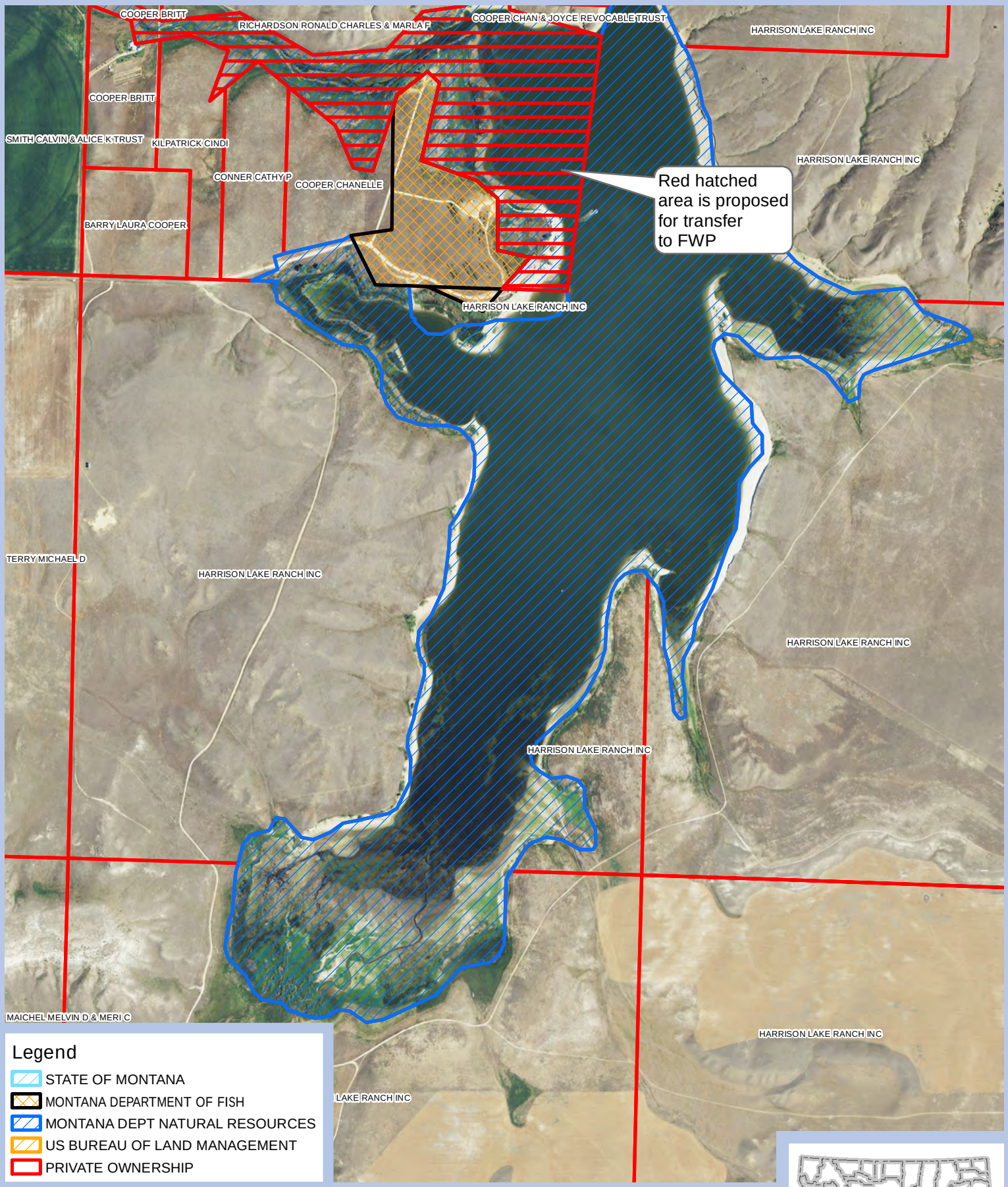
Service Layer Credits:

Legend

- STATE OF MONTANA
- MONTANA DEPARTMENT OF FISH
- MONTANA DEPT NATURAL RESOURCES
- US BUREAU OF LAND MANAGEMENT
- PRIVATE OWNERSHIP

Willow Creek Reservoir Land Ownership



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- STATE OF MONTANA
- MONTANA DEPARTMENT OF FISH
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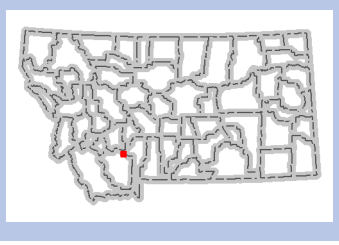

Willow Creek Reservoir

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