

I-90 Structures – West of Alberton Bridge Replacements: Old Hwy 10, Clark Fork River, and Cyr Bridges

MDOT Project: UPN 9786

Control #: NHPB 90-1(239)65

Biological Assessment of Potential Impacts to Bull Trout and Bull Trout Critical Habitat from Geotechnical Drilling Activities

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Executive Summary

This Biological Assessment (BA) is prepared for the Montana Department of Transportation (MDT) to assess the potential impacts of geotechnical drilling associated with the Alberton Bridge Project on federally-listed threatened and endangered species and designated critical habitats. MDT is proposing the removal and replacement of two existing bridge structures and the repair of one bridge structure on westbound Interstate 90 (I-90) in Mineral County, west of the Town of Alberton. The existing Old Highway 10 Bridge (Reference Post [RP] 65.5) will be repaired. The existing Clark Fork River Bridge (RP 66.3), and Cyr Bridge (RP 70.1) will be removed and replaced.

Prior to bridge replacement, SK Geotechnical Corporation (SK Geotechnical) will conduct a geotechnical drilling investigation at the Clark Fork River and Cyr Bridge structures (cumulatively referred to in this document as the Project) to analyze geotechnical characteristics for incorporation into bridge pier design. No geotechnical drilling is proposed for the Old Highway 10 bridge site, therefore that site is not addressed in this BA. Construction of access roads, crane pads, and boreholes will be completed in accordance with Montana Department of Transportation (MDT) manuals and associated Best Management Practices (BMPs). A detailed description of the proposed drilling and geotechnical work as part of the Project is included in Appendix A.

This BA was prepared in compliance with Section 7(c) of the Endangered Species Act (ESA). Section 7 of the ESA directs federal agencies to “ensure that actions they authorize, fund, and/or construct are not likely to jeopardize the continued existence of any federally proposed or listed species or result in destruction or adverse modification of critical habitat for such species.” Section 7(c) of the ESA requires that federal agencies contact the U.S. Fish and Wildlife Service (USFWS) before beginning construction activity to determine if federally listed threatened and endangered (T&E) species or designated critical habitat may be present in the vicinity of a proposed project.

The documented observations for federally-listed species and designated critical habitat were evaluated for the Project using the Information for Planning and Consulting (IPaC) website (USFWS 2023), Montana Natural Heritage Program (MTNHP) data, on-site surveys, and publicly available data. Documents attached to this BA that provide Project-specific species and habitat data include the USFWS Species Report (Appendix B), USFWS Comment Letter (Appendix C), and MTNHP Environmental Summary Report (Appendix D).

Drilling activities have the potential to temporarily impact the Clark Fork River, which is designated critical habitat for bull trout (*Salvelinus confluentus*). The main disturbances occurring from the Project are likely related to noise and vibration associated with drilling. However, drilling is scheduled to occur in late summer and fall when bull trout are not likely to be found in the Clark Fork River near the Project areas. During times of low flow and elevated water temperatures bull trout typically prefer habitats in tributaries with lower water temperatures.

Additionally, the drilling schedule coincides with typical cycles of low flow for the Clark Fork River so drilling adjacent to the river is anticipated to be conducted above the waterline. Drilling above the waterline avoids potential fishery impacts from physical barriers in the river and drilling will not affect

habitat characteristics such as substrate, large woody debris, or streambed structure. Conducting drilling above the waterline will also reduce the potential for noise and vibration transfer through the water. As a result, noise levels associated with geotechnical drilling are expected to be similar to ambient river noise levels.

Mitigation measures in addition to timing considerations include the implementation of BMPs such as safe disposal of drilling cuttings, installation of conductor casings prior to drilling, and avoidance of vibratory hammers. Implementation of BMPs will also be used to avoid potential spills or sedimentation of Clark Fork river during drilling activities and reclamation of access roads and drill pads.

The geotechnical drilling proposed for the Project at the Cyr Bridge and Clark Fork River bridge sites ‘may affect, is not likely to adversely affect’ bull trout and bull trout designated critical habitat. No permanent impacts to federally-listed species or designated critical habitat are anticipated as a result of the geotechnical drilling or associated activities such as access road and crane pad construction.

1 Introduction

1.1 Project Description and Location

The Montana Department of Transportation (MDT) is proposing the removal and replacement of two existing bridge structures and rehabilitation of one bridge structure on westbound I-90 in Mineral County, Montana.

The bridge structures were constructed in the 1960s. Inspections completed in summer 2019 and spring 2021 documented growing cracks in transverse steel girders, fracture critical details, and substandard elements. A repair investigation conducted by MDT determined that repair would not be feasible on the Cyr or Clark Fork River Bridge structures, and replacement of the structures was selected by MDT as the preferred action due to the bridge types, existing capacities, deficiencies, and inability to meet future needs (Morrison Maierle meeting minutes, Project No. NHPB 90-1(239)65 UPN 9786, 5/21/2021).

The Old Highway 10 Bridge (Reference Post [RP] 65.5) will be repaired/rehabilitated and is not adjacent to the Clark Fork River. Bridge structures to be replaced include Clark Fork River Bridge (RP 66.3), and Cyr Bridge (RP 70.1). The Study Areas analyzed for this BA are shown in Figure 1-1. Geotechnical drilling is proposed at the Clark Fork River and Cyr Bridge structures as part of bridge replacement design work. This BA analyzes potential effects of the geotechnical drilling at the Cyr and Clark Fork bridge sites, collectively referred to as the Project for purposes of this document. Environmental surveys were previously conducted at the Project Sites within the Study Areas shown on Figure 1-2 (HydroSolutions & WESTECH 2021). Potential effects from the repair and rehabilitation of the Old Highway 10 Bridge and replacement of the Clark Fork River and Cyr Bridge structures will be analyzed in a separate BA.

A geotechnical investigation, including drilling and laboratory testing, is required prior to final foundation design for the bridge replacement. This BA covers four borings beneath intermediate bridge spans at each bridge site (eight borings total). Preliminary designs indicate intermediate pier foundations will consist of 8-foot diameter drilled shafts. The boreholes for this investigation will be located at proposed piers, and will be relatively small, typically 3-6 inches in diameter. The eight borings will be completed to profile the soil and bedrock strata at proposed pier locations and tested at a laboratory for final foundation design. SK Geotechnical is proposing to use a combination of rotary/casing advancer methods down to bedrock, and then HQ coring methods to the termination depth. Activities will be conducted in accordance with the MDT Geotechnical Manual, Materials Manual and Procedures, and Consultant User Manual Guidelines. A detailed description of proposed geotechnical work is included in Appendix A.

The boring locations at both bridge sites are located on steep slopes with difficult access and will require the use of a crane pad-mounted drill rig. Drilling through the deck or lowering a platform from the existing bridge were considered but were determined to be infeasible due to the bridge deck heights and the limited roadway width. SK Drilling has proposed using temporary crane pads to complete the borings. Four approximately 30-foot by 30-foot crane pads are anticipated for the work.

Temporary access roads will be constructed to access crane pads. Approximate locations of these features are provided in Figures 1-2 and 1-3. In accordance with MDT regulations, vegetation clearing activity that may disrupt or displace nesting migratory birds was done prior to April 15, 2023 (MDT 2020). Construction of access roads and crane pads will be completed by August of 2023. Geotechnical work at the Cyr Bridge will be completed in the late summer/early fall of 2023, when river flows are typically at their lowest, to allow access to boreholes ST-23 and ST-24. Duration of drilling activities is dependent on drill permit approval, landowner permission, and availability of drilling crews. Additionally, SK Geotechnical notes that borings at both bridges will require drilling through boulder layers which can further delay drilling efforts. SK Geotechnical has built contingencies into their schedule to address these potential delays (Appendix A). Table 1.1 provides borehole identifications, surface elevations, and target elevations and depths for the proposed intermediate pier foundation locations.

Table 1.1. Geotechnical Borehole Locations and Elevations

Boring ID	Approximate Surface Elevation of Bore Hole (ft)	Estimated Bedrock Elevation (ft)	Target Elevation (ft)	Target Depth (ft)
Clark Fork River Bridge				
ST-15	2900	2860	2810	90
ST-16	2885	2860	2800	85
ST-17	2900	2875	2825	75
ST-18	2905	2885	2835	70
Cyr Bridge				
ST-21	2910	2825	2810	100
ST-22	2910	2825	2810	100
ST-23	2897	2850	2810	87
ST-24	2897	2850	2810	87

To prevent surface runoff from travelling offsite, Best Management Practices (BMPs) will be employed for the access roads, crane pads, and boreholes. MDT Standard Specifications for Water Pollution Control [208.03.2] and Protection of Aquatic Resources [208.03.3] will ensure avoidance and minimization of impacts to instream habitat insofar as they apply to the proposed subsurface investigation. After drilling activities are complete, access roads and crane pads will be roughly regraded to original contours and reseeded with MDT-approved seed mixes (Appendix A).

A summary of each structure including its MDT Structure ID, National Bridge Inventory (NBI) Structure Number, and legal description are shown in Table 1.2. The locations of the two structures are shown in Figure 1-1. The proposed borehole locations for the Clark Fork and Cyr sites are shown in Figure 1-2 and Figure 1-3. Representative photos of the Study Areas are provided in Attachment 1. Borehole locations (plan and profile views) for each structure are detailed in General Layout Drawings in the SK Geotechnical Technical Memorandum (Appendix A).

Table 1.2: Structure Identification and Location

Structure Name (local reference)	Reference Post (RP)	MDT Structure ID	Location
Clark Fork River (Triple Bridges)	66.3	#01379 (NBI Structure Number I00090066+02792)	T15N R24W S32
Cyr	70.1	#01385 (NBI Structure Number I00090070+00902)	T14N R24W S01

Notes: All structures are in Mineral County. Legal description, Township-Range-Section, Montana Principal Meridian. Reference Posts are for I-90 West.

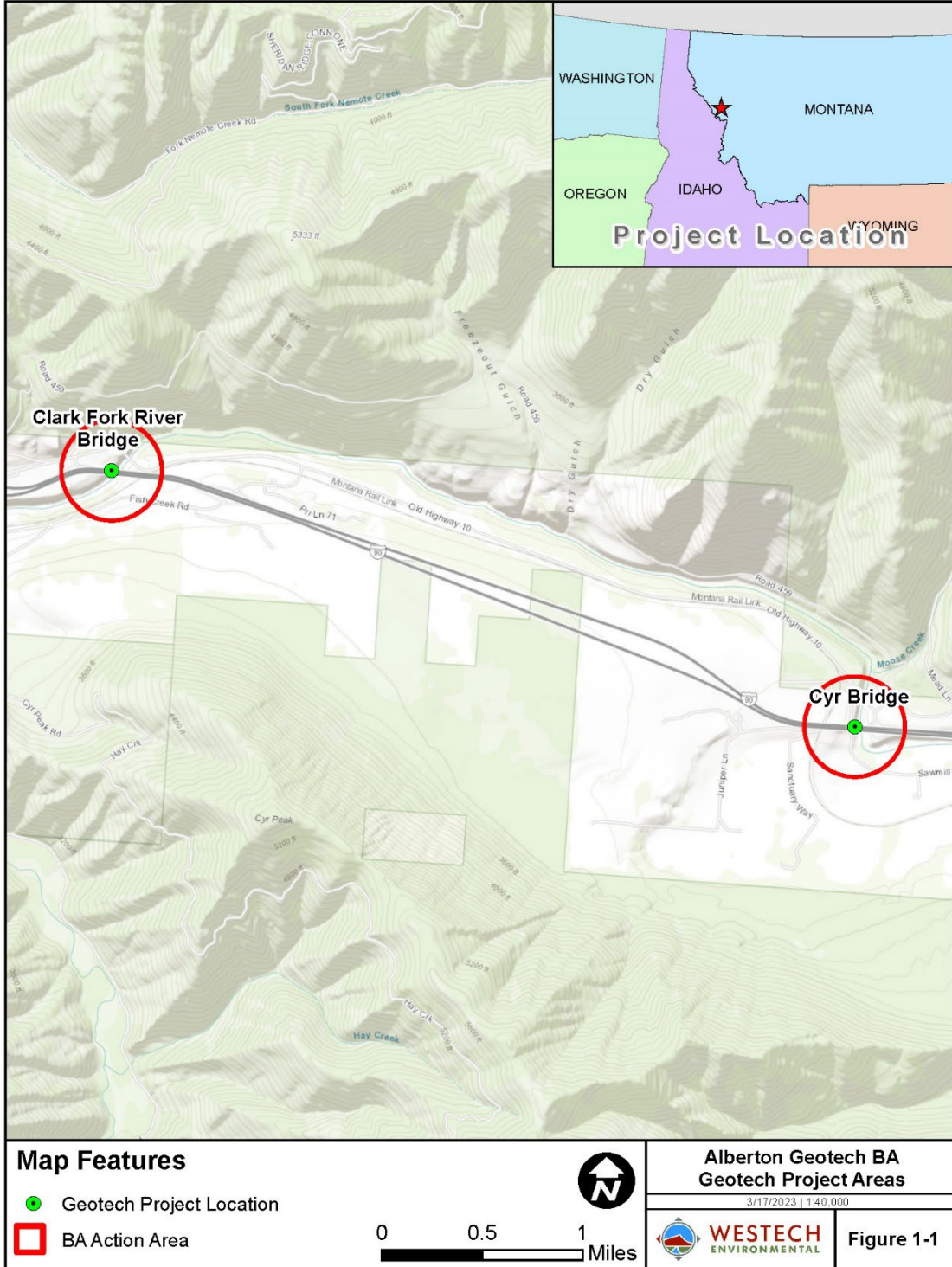


Figure 1-1: Alberton Bridge Replacement Project Location Map

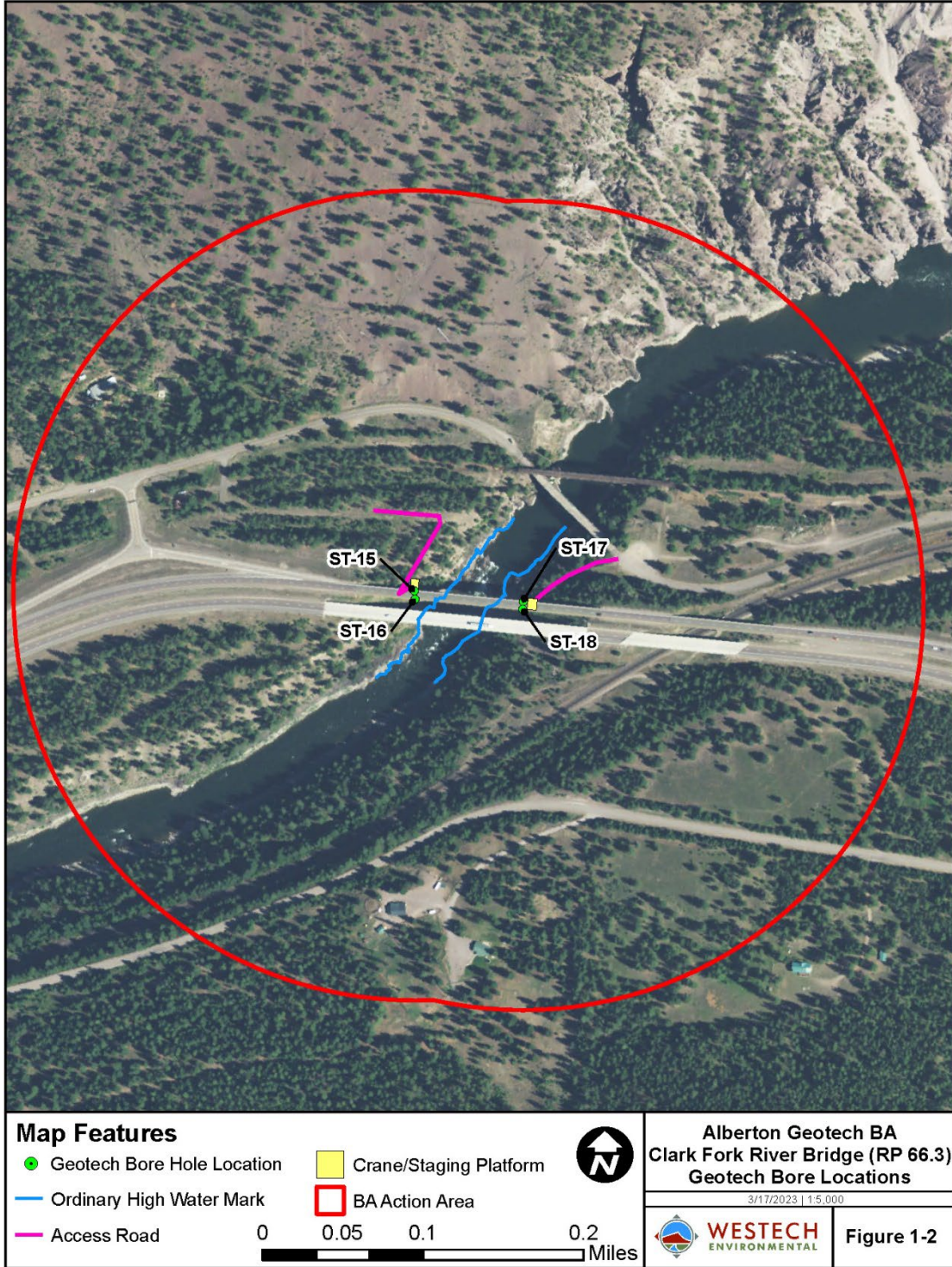


Figure 1-2: Clark Fork River Bridge Geotech Borehole Locations

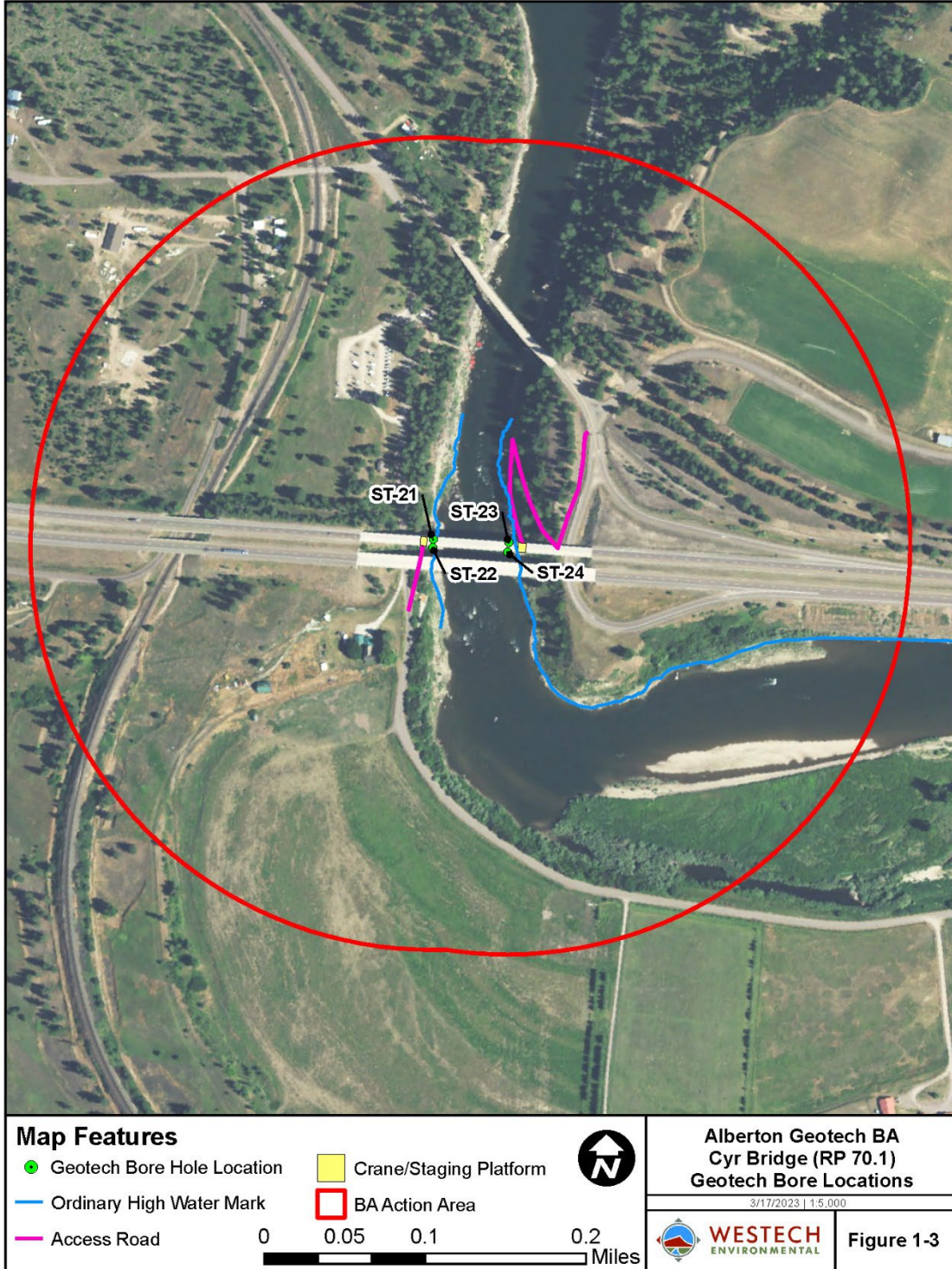


Figure 1-3: Cyr Bridge Geotech Borehole Locations

1.2 Ecological Setting and General Area Description

1.2.1 Ecoregion

The Project is within the Northern Rockies level 3 ecoregion and the Grave Creek Range-Nine Mile Divide level 4 ecoregion (Woods, et al. 2002).

1.2.2 Landcover

Landcover for the Project was analyzed using geographic information system (GIS) analysis with landcover data from the Gap Analysis Project (GAP) and National Terrestrial Ecosystems landcover spatial data (LANDFIRE) acquired from the Montana State Library (MSL), and US Geological Survey (MSL 2013, LANDFIRE 2021).

The Study Areas are primarily comprised of paved roads (LANDFIRE 2021). Uplands are dominated by Ponderosa Pine (*Pinus ponderosa*) with wheatgrass or fescue understory, described *Pinus ponderosa*/*Agropyron* spp. or *Pinus ponderosa*/*Festuca* spp. habitat types (Pfister et al. 1977). Native graminoid species were observed in low densities. Crested wheat grass (*Agropyron cristatum*) and smooth brome (*Bromus inermis*), both introduced species, were the dominant upland grasses.

The vegetated portions of the riparian zones at the Clark Fork River and Cyr bridges are dominated by willow species. Observed species include narrowleaf willow (*Salix exigua*), Geyer willow (*Salix geyeriana*), sandbar willow (*Salix interior*), and peachleaf willow (*Salix amygdaloides*). Dominant riparian zone forbs include wild mint (*Mentha arvensis*), water smartweed (*Persicaria amphibium*), scouring rush horsetail (*Equisetum hyemale*), field horsetail (*Equisetum arvense*), and American licorice (*Glycyrrhiza lepidota*). Landcover data includes ten cover types within the Study Areas provided in Table 1.3.

Acreages and proportions of landcover for the Project Study Areas are summarized in Table 1.3, which provides a subtotal for each bridge Study Area and totals for the combined Study Areas. The values in the Percent of Project Site column represent percentages for each Landcover type within a given Study Area (i.e., Clark Fork River or Cyr) while the subtotal values provide the proportion of each Study Area to the combined Study Areas for both bridge sites covered by this BA.

Table 1.3: Summary of Landcover for the Geotech BA Study Areas.

Bridge	Landcover Name	Sum of Acres	Percent of Project Site
Clark Fork River	Interstate	22.14	71%
	Railroad	3.48	11%
	Rocky Mountain Ponderosa Pine Woodland and Savanna	1.93	6%
	Major Roads	1.31	4%
	Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest	1.16	4%
	Rocky Mountain Lower Montane, Foothill, and Valley Grassland	0.62	2%
	Open Water	0.43	1%
Clark Fork River Sub-Total		31.08	46%
Cyr	Interstate	28.04	75%
	Rocky Mountain Lower Montane, Foothill, and Valley Grassland	4.16	11%
	Open Water	2.95	8%
	Other Roads	1.37	4%
	Railroad	0.75	2%
Cyr Sub-Total		37.27	54%
Grand Total		68.35	100%

1.2.3 Land Use and Land Ownership

Land uses at the Project Sites are predominantly related to transportation, including Interstate highways, railroads, and other roads. The Study Areas also include open water of the Clark Fork River, which is associated with recreational and aquatic uses. Other land uses at the Project Sites include MDT right-of-way, undeveloped floodplain, forest land, and rangeland.

Most of the Project activities will take place within MDT right-of-way, although private and other public parcels are located within the Study Areas. A summary of property parcels is provided in Table 1.4 (MSL 2021).

Table 1.4: Parcels within Geotech Project Study Areas.

Study Area	Parcel ID	Property Type
Clark Fork River	54242432101150000	Improved Property - Rural
	54242432101020000	Vacant Land - Rural
	54242432103010000	Exempt Property
	54242432201010000	Vacant Land - Rural
	54242432101030000	Improved Property - Rural
Cyr	54232001201010000	Farmstead - Rural
	54232001202010000	Improved Property - Rural
	54232001202020000	Vacant Land - Rural

2 Methods and Action Area

2.1 Agency Coordination and Literature Review

Information reported within this section was obtained from a combination of agency coordination and a review of literature and database searches. The list of federally listed, threatened, proposed, and candidate species considered for this Project was generated based on query of the IPaC website (USFWS 2023). The results of the IPaC query are provided in Appendix B.

Information was also gathered from the Montana Natural Heritage Program (MTNHP) website. The MTNHP is a clearinghouse for state species of concern as well as federally listed threatened, endangered, proposed and candidate species in the state of Montana. MTNHP database inquiries were performed for a one-mile buffer around the two Project Sites (Appendix D).

As part of preliminary agency coordination for the Alberton Bridges Project the USFWS provided descriptions of species and habitats that could occur near the Project. The USFWS correspondence also outlined several mitigation measures to lessen potential impacts to bull trout and their designated critical habitat (Appendix C). Given the reduced scope of the geotechnical drilling work compared to the overall bridge replacement project, only certain species, habitats, and mitigations measures are applicable.

2.2 Field Survey

Evaluations of habitat and presence for federally listed threatened and endangered species and designated critical habitats were conducted as part of site surveys conducted on July 28 and August 31, 2021.

2.2.1 Project Action Area

The proposed work will include drilling eight boreholes, approximately 70 to 100-feet deep. Two boreholes at the Cyr site are within the Ordinary High-Water Mark (OHWM) of the Clark Fork River. The

remaining six bore locations are above the OHWM adjacent to the Clark Fork River. The Action Area is “all areas to be affected directly or indirectly by the proposed action and not merely the immediate area directly adjacent to the action” (50 CFR §402.02). The Action Area covered in this BA is a 0.25-mile radius buffer, centered on each bore hole location. This buffer distance sufficiently assesses the potential impacts from geotechnical activities on surrounding resources (J. Weigand, MDT, personal communication, March 15, 2023).

2.2.2 Aquatic Portion of the Action Area

The aquatic portion of the Action Area is defined by the furthest extent of effects anticipated as a result of instream work. Potential impacts to the Clark Fork River from drilling would include underwater noise during placement of a conductor casing around the drill to contain/recirculate drill water, drilling, and potential temporary sediment and turbidity induced from potential instream work. Drilling at the Cyr bridge will be conducted in late summer/early fall, which is typically when the lowest river flows of the year occur. Although no instream work is anticipated because of this timing, two bore locations at the Cyr site are within the OHWM. If feasible, drilling at the Clark Fork bridge will be conducted in the spring/summer since the proposed bore locations are outside of the OHWM.

Ambient underwater noise has not been measured for this Project; however, the Washington State Department of Transportation (WSDOT) has developed methods to estimate ambient noise from river characteristics. The WSDOT study determined ambient noise levels in fast moving rivers such as the Clark Fork within the Study Area are approximated to 140 dB RMS (WSDOT 2015). Decibel levels from a geotechnical noise study conducted by Erbe and McPherson in 2017 ranged from 130 to 140dB (Erbe and McPherson 2017) for underwater conductor casing placement. Anticipated noise levels from the proposed geotechnical drilling should be similar to those reported in the WSDOT and the Erbe and McPherson study for approximate ambient noise levels of a fast moving river, such as the Clark Fork.

Sediment associated with drilling activities would be captured and contained using BMPs during geotechnical drilling. A conductor casing will also be used around the drill to isolate drill water, fluids, and particulate matter from the Clark Fork River. Additionally, geotechnical boring at the Cyr bridge will be done during late summer when flows are typically at their lowest.

2.2.3 Terrestrial Portion of the Action Area

The terrestrial portion of the Action Area is defined based on the potential for noise associated with operation of drilling equipment and access road/crane pad construction. Baseline noise levels for the Project have not been measured and would likely be defined by the near-continuous road noise produced from traffic travelling on I-90. For this analysis, a 0.25-mile buffer is applied to each bore hole location to define the terrestrial portion of the Action Area.

3 Threatened and Endangered Species Biological Assessment

3.1 Activity Description and Effects Analysis

The geotechnical investigation at the Clark Fork River and Cyr Bridge structures will determine the subsurface conditions at the intermediate piers (bedrock, soil types, erosion, scour potential and other conditions). A total of eight drilling locations are proposed for the Project, consisting of four drillings at two bridge sites (Figures 1-2 and 1-3). These borings are estimated to be between 70 and 100-feet in depth. A technical memo detailing the purpose and methodology for the geotechnical drilling adjacent to the river is included in Appendix A of this BA. This BA focuses on the geotechnical boring sites adjacent to the Clark Fork River, access roads, and crane pads.

The habitats and observations of federally listed threatened or endangered species within the Action Areas were cross-referenced using USFWS (Appendix B) and MTNHP data (Appendix D). Aerial imagery was analyzed to identify potential habitats of listed species and field surveys were conducted to characterize habitats for listed species.

Preliminary consultation with the USFWS was initiated by MDT on June 10, 2021. The USFWS provided a written response to the data request on July 1, 2021, that provides descriptions of the species and habitats that could occur at the Project sites (Appendix C). WESTECH and HydroSolutions consulted with the MDT regional biologist on July 19, 2021, to discuss potential species impacts and mitigation measures for consideration.

A Biological Resource Report including a Preliminary Biological Assessment was completed for the overarching bridge project in 2021 (HydroSolutions and WESTECH 2021). An effects analysis was determined for each T&E species identified by USFWS with potential to occur within the Action Area. This Biological Assessment specifically addresses the geotechnical investigation required to complete the engineering and design of the bridge project and the potential impacts from the investigation on bull trout and bull trout critical habitat.

3.1.1 Bull Trout and Bull Trout Designated Critical Habitat

Species status, distribution, habitat requirements, reasons for decline

Bull trout are listed as threatened in Mineral County and the Clark Fork River is bull trout Designated Critical Habitat. Bull trout are found in the Clark Fork and Flathead drainages of western Montana. Sub-adult and adult bull trout inhabit the main channel of the Clark Fork River and spawn in its tributaries (MBTRP 2000). Spawning occurs between late August and early November. Bull trout are sensitive to sedimentation, isolation and fragmentation of habitat, habitat loss due to water management practices, and hybridization with non-native brook trout (which produces sterile hybrids) (MTNHP 2021).

Occurrence in Action Area

The project area is located within the middle Clark Fork River subbasin, which extends from the confluence of the Blackfoot River to the Flathead River confluence 119 miles downstream. The current distribution of bull trout in the middle Clark Fork River subbasin has greatly decreased from historic

levels. Currently, bull trout in the middle Clark Fork River drainage are uncommon to rare (MBTRT 2000). The Middle Clark Fork River Core Area contains the following bull trout local populations: Albert Creek, Cedar Creek, Fish Creek, Grant Creek, Petty Creek, Rattlesnake Creek, Saint Regis River, and Trout Creek.

The Montana Fish, Wildlife and Parks (FWP) MFISH Mapper (FWP 2023) was reviewed to identify recent bull trout documentation from fish survey locations in the vicinity of the project area. A single bull trout was recorded in 2008 and two bull trout were recorded in 2011 at a sampling location approximately 12 river miles upstream from the Cyr bridge. A survey location immediately downstream of the project area has not documented any bull trout. Based on a review of available information, bull trout are present within the project area but at very low numbers. Designated bull trout critical habitat exists in the project area.

Bull trout populations in the Clark Fork River are fluvial, meaning that adult fish inhabit the main stem of the Clark Fork River but migrate to tributary streams to spawn. Upstream migration of bull trout through the project areas would likely occur in June and return migration after spawning would occur in late September through November (MBTRP 2000). The Clark Fork River in the vicinity of the action area is a migratory corridor and generally provides foraging, migration, or over-wintering habitat (FMO) for bull trout. Resident forms of bull trout, including foraging sub-adults, have the potential, albeit limited, to use the project area at the time of drilling activities.

Bull trout are found in the Clark Fork River at both the Clark Fork River Bridge and Cyr Bridge Project Sites. The State of Montana has identified core areas for bull trout in the bull trout restoration plan (MBTRT 2000). The Project is located in the Clark Fork River Section 2 Core Area, within the Columbia Headwaters Recovery Unit (USFWS 2015). The upstream boundary of the Section 2 Core Area on the Clark Fork River is just west of Bonner, Montana. The downstream boundary of Section 2 is located where the Clark Fork River crosses under MT Highway 200, approximately 2 miles south of Paradise, Montana. Bull trout are currently considered uncommon to rare in this section of the Clark Fork (MBTRT 2000).

Bull trout use of river habitat is limited by a preference for cooler water temperatures and avoidance of areas that reach or exceed 59°F (MBTRT 2000). Water temperature data from the Huson monitoring station on the Clark Fork River, located approximately 20 river miles upstream of the Action Areas, are presented in Table 3.1. These data show the median temperatures in the Clark Fork exceed the preferred bull trout temperature range between July and August (Montana DEQ 2023). Bull trout seek cold water refugia in tributaries of the Clark Fork River during these periods of low, warm water.

Fisheries biologists at FWP identified Fish Creek as a suitable cold water refuge for bull trout that may occur near the Project area (L. Knotek, personal communication, 4/20/2023). The junction of Fish Creek with the Clark Fork River is 2.4 miles from the Clark Fork Bridge site and 6.8 miles from the Cyr Bridge site. Based on the proposed drilling schedule and proximity to refuge streams, it is unlikely that bull trout will be present within the Project Action Area during drilling.

Table 3.1: Clark Fork River at Huson Instream Temperature, 1998-2021.

	Number of Samples	Average Temp Fahrenheit	Median Temp Fahrenheit
January	5	37.1	35.1
February	5	38.3	36.7
March	5	41.2	41.5
April	6	46.3	44.0
May	13	54.9	55.9
June	23	60.3	58.8
July	45	66.8	66.9
August	53	65.7	66.0
September	44	58.9	58.6
October	5	49.7	50.7
November	8	41.6	43.2
December	6	38.2	38.4

Potential Impact Analysis

Although two of the eight bore holes will be below the OHWM of the Clark Fork River, drilling activities will be conducted during low flow periods and therefore will not present in-water physical impediments to fish movement through the area. The USFWS created a Matrix of Diagnostics/Pathways and Indicators (USFWS 1998) to assess a proposed action and the potential short-term and long-term effects of the action on bull trout. The matrix assessing the project and its potential impacts on bull trout follows in Table 3-2.

Table 3.2: Bull Trout Matrix of Diagnostics/Pathways and Indicators

Diagnostic/Pathways: Indicators	Population and Environmental Baseline (FA, FAR, FUR)*	Major Effects of the Action(s) (Restore, Maintain, Degrade)	Minor Effects of the Action(s) (Restore, Maintain, Degrade)
SUBPOPULATION CHARACTERISTICS			
Subpopulation Size	FUR	Maintain	Maintain
Growth and Survival	FUR	Maintain	Maintain
Life History Diversity & Isolation	FAR	Maintain	Maintain
Persistence and Genetic Integrity	FUR	Maintain	Maintain
WATER QUALITY			
Temperature	FUR	Maintain	Maintain
Sediment	FUR	Maintain	Maintain
Chemical Contamination/Nutrients	FUR	Maintain	Maintain
HABITAT ACCESS			
Physical Barriers	FAR	Maintain	Maintain
HABITAT ELEMENTS			
Substrate Embeddedness	FUR	Maintain	Maintain
Large Woody Debris	FAR	Maintain	Maintain
Pool Frequency & Quality	FUR	Maintain	Maintain
Large Pools	FUR	Maintain	Maintain
Off-Channel Habitat	FAR	Maintain	Maintain
Refugia	FUR	Maintain	Maintain
CHANNEL CONDITION & DYNAMICS			
Wetted Width/Max Depth Ratio	FUR	Maintain	Maintain
Streambank Condition	FUR	Maintain	Maintain
Floodplain Connectivity	FAR	Maintain	Maintain
FLOW & HYDROLOGY			
Change in Peak/Base Flows	FAR	Maintain	Maintain
Drainage Network Increase	FAR	Maintain	Maintain
WATERSHED CONDITIONS			
Road Density & Location	FUR	Maintain	Maintain
Disturbance History	FAR	Maintain	Maintain
Riparian Conservation Area	FUR	Maintain	Maintain
Disturbance Regime	FAR	Maintain	Maintain
Integration of Species & Habitat Cond.	FUR	Maintain	Maintain
Source: USFWS 2008; Functioning Acceptable - FA; Functioning at Risk - FAR; Functioning at Unacceptable Risk - FUR Major effects - change one level from baseline condition Minor effects - Indicates action may result in an incremental or cumulative effect but does not result in a functional change to the system (no change in functional level).			

The diagnostic pathway indicators are discussed in further detail below. Subpopulation characteristics will not be impacted by geotechnical activities, as no in-water work is anticipated. Further, strict adherence to MDT mitigation measures for near stream work and the implementation of BMPs will prevent geotechnical activities from causing long-term impacts to the Clark Fork River.

Subpopulation Characteristics

Subpopulation Size

No in-water work is anticipated that could potentially affect individual bull trout. The proposed project is not likely to have short-term or long-term effects on subpopulation size.

Growth and Survival

There is no in-water work planned that could potentially affect individual bull trout. The proposed project is not anticipated to have short-term or long-term effects on growth and survival.

Life History Diversity and Isolation

The proposed project is not anticipated to have short-term or long-term effects on life history diversity and isolation.

Persistence and Genetic Integrity

Mitigation measures and BMPs will ensure that potential impacts to individual bull trout are avoided. The proposed project is not anticipated to have short-term or long-term effects on persistence and genetic integrity.

Water Quality

Temperature

No in-water work that could potentially affect the physical attributes of the Clark Fork River is planned. The proposed project is not anticipated to have short-term or long-term effects on water temperature.

Sediment

The proposed project is not anticipated to have long-term effects on suspended and accumulated sediments in the project area. Where drilling equipment and activities will be completed near surface water, there is potential for minor short-term effects on suspended and accumulated sediments. These effects will be mitigated through use of BMPs and use a contaminant boom placed around the drilling platform. The contaminant boom will contain drill cuttings within a closed loop system preventing them from entering the stream.

Chemical Contamination/Nutrients

The proposed project is not anticipated to have long-term effects on chemical contamination and nutrients in the project area. Where drilling equipment and activities will be completed near surface water, there is potential for minor short-term effects on chemical contamination and nutrients. These

effects will be mitigated through use of BMPs and use a contaminant boom placed around the drilling platform. The contaminant boom will contain drill cuttings within a closed loop system preventing them from entering the stream.

Habitat Access

Physical Barriers

There will be no in-water work that could temporarily create a physical barrier for bull trout movement. The proposed project is not anticipated to have short-term or long-term effects on physical barriers.

Habitat Elements

Substrate Embeddedness

The proposed project will not permanently disturb in-stream substrate. Implementation of the project may have a short-term effect, however no long-term effects on substrate embeddedness are anticipated.

Large Woody Debris

There is very little large woody debris within the Project areas, and no in-water disturbance anticipated. The proposed project will not affect large woody debris.

Pool Frequency & Quality

No permanent disturbances to the streambed are anticipated, nor will it add boulders or large woody debris that could alter the frequency or quality of pools within the Project areas. The bore holes below the OHWM will likely be above the low water levels at the time of drilling. These bore locations are located in a shallow riffle during high water periods. The proposed project will not have short-term or long-term effects on pool frequency or quality.

Large Pools

As mentioned in the previous indicator, the proposed project will not alter or disturb any large pools. The proposed bore locations within the OHWM are located within a shallow riffle during high flows. There will not be short-term or long-term effects to large pools as a result of the project.

Off-Channel Habitat

There is no off-channel habitat within the Project areas. There are no short-term or long-term effects to off-channel habitat anticipated from this project.

Refugia

Although no short-term or long-term effects to refugia are anticipated from this project, drilling activity and noise could temporarily cause fish using bridge components as refugia to move away from the bridges. However, noise levels from geotechnical drilling will be similar to ambient in-water noise levels at both bridge sites.

Channel Conditions and Dynamics

Wetted Width/Maximum Depth Ratio

No change in wetted width/maximum depth ratio will occur.

Streambank Condition

No change to long-term streambank condition will occur with completion of this project.

Floodplain Connectivity

No short-term or long-term effects to floodplain connectivity will occur with completion of this project.

Flow & Hydrology

Change in Peak/Base Flows

The project as proposed will not affect the amount of water flowing through the action area. There are no anticipated short-term or long-term effects to changes in peak or base flows from this project.

Drainage Network Increase

Due to the nature of the work being proposed, there are no anticipated short-term or long-term effects which will increase the drainage network.

Watershed Conditions

Road Density & Location

The proposed project will construct two temporary access roads for equipment to reach the drilling pads along the alignment of previous access roads for the original bridge construction. These roads will be obliterated and regraded to original contours upon project completion. The proposed project will not result in permanent net change in road density or location.

Disturbance History

The action area has a long history of relatively high disturbance from transportation, recreation, and residential development. The geotechnical drilling activities will add a minor amount of short-term disturbance to the action area. No long-term effects are anticipated.

Riparian Conservation Area

The BMPs and mitigation measures that will be implemented for geotechnical drilling will minimize impacts to the riparian area. The project is not anticipated to have long-term effects on riparian areas.

Disturbance Regime

The short-term disturbance from sound generation during drilling activities is expected to temporarily impact the disturbance regime in the vicinity of the project area. Drilling activities will occur during the summer construction season, a period of warm water temperatures and lower flows when bull trout are not likely to be present.

The potential disturbances occurring from the Project are likely related to noise and vibration associated with drilling activities and potential barotrauma effects. The available literature and compendiums on hydroacoustic monitoring for noise and barotrauma effects on fish primarily assess impact pile driving (Stadler and Woodbury 2009; Illingworth & Rodkin, Inc. 2013). These sound-pressure level assessments are typically performed on impact pile driving activities within the water column. The air-borne sound levels from drilling activities are lower than the noise levels generated by impact pile driving. Literature and recent monitoring results have shown that impact pile driving sound-pressure levels did not reach the thresholds established for barotrauma harm to fish (Stadler and Woodbury 2009, Miner 2019).

The use of impact pile driving, vibratory hammer rotary drills, or down-the-hole-hammer pneumatic percussion drilling methods are not planned for the Project. However, the following paragraphs provide perspective for anticipated sound levels from drilling relative to louder and stronger vibration methods such as impact driving.

In a comment response to the MDT Bonner I-90 Bridge Study (UPN 816400, BR 90-2(131)108, 2014) the USFWS cited literature that examined the transmission of ground-borne vibrations into the water column. This assessment was in relation to the portion of the in-channel pile located in the substrate, as opposed to within the water column. USFWS concluded that piles that are impact driven “in-the-dry” adjacent to a waterbody could still have effects to the waterbody (USFWS, 2014). The extent of these effects was not quantified. According to the USFWS, for the purpose of Endangered Species Act consultations, and until new information becomes available to refine the criteria, the onset of physical injury [to fish] would be expected if either the peak sound pressure level (SPL) exceeds 206 dB (re: 1 μ Pa) or the sound exposure level (SEL), accumulated over all pile strikes generally occurring within a single day, exceeds 187 dB (re: 1 μ Pa²·sec) for fishes weighing 2 grams or larger, or 183 dB for smaller fishes (Stadler and Woodbury 2009).

MDT has in-stream hydrophone sound monitoring data from a comparable project near Bonner, MT during a monitoring event conducted while MDT was pile-driving (4) piles into the bank of the Blackfoot River (Miner 2019). The pile-driving consisted of more than 2,700 individual hammer strikes on 55' 24" diameter open steel piles. A cumulative SEL of 175.6dB was found with a peak sound level of approximately 168 dB. Both values are below the thresholds provided by USFWS and represent real time monitoring data from a much louder activity (pile driving vs drilling).

Limited data from literature or research is available that conclusively quantified subsurface sound-pressure levels or the rate of subsurface noise or vibration transmission associated with drilling activities. Altogether, underwater noise from geotechnical site investigations was up to 35 dB above ambient levels at certain frequencies and hence likely detectable by various taxa of marine fauna. Levels were tens of dB less than those from production or construction operations and below levels commonly considered in marine noise regulations” (Erbe and McPherson 2017).

It cannot be conclusively stated that no noise or vibration resulting from the bore hole locations will make it to the water column, but the expected levels of noise and vibration, if transmitted to the water column, are not likely to reach levels expected to cause harm to fish. Therefore, it is reasonable to conclude that, if present, transmission of noise or vibration to the water column may result in a minor and short-term behavioral response by adult fish in the vicinity of the bridge during active drilling

operations. These effects would be considered insignificant and are not expected to harm fish or eggs. Effects would cease when drilling activities are concluded, either for the day or for the project. No long-term negative effects are anticipated to result from the proposed drilling activities.

Mitigation/Conservation Measures

The MDT Standard Specifications along with Special Provisions developed specifically for this project will be included in contract documents and serve as Conservation Measures to avoid and minimize potential impacts to bull trout and bull trout critical habitat.

The USFWS outlined several construction-specific mitigation measures to lessen potential impacts to bull trout and their designated critical habitat in the July 1, 2021, letter (Appendix C). These mitigation measures will be considered for geotechnical activities where relevant and applicable. USFWS recommendations and mitigation measures for bull trout at the Clark Fork River and Cyr Bridge sites include:

- Geotechnical drilling at the Cyr bridge will occur late summer/early fall when the river is at base flow and water temperatures may be unsuitable for bull trout.
- To minimize impacts from drilling noise, install conductor casings prior to drilling and exclude use of vibratory hammer drills.
- In the unlikely event that instream work is to occur, work conducted within the channel shall be kept to the minimum amount necessary and completed in the shortest amount of time possible.
- Install containment curtains around the base of the boom during drilling to contain potential spills and prevent spill migration in the waterway.
- The contractor will dispose of drill cuttings in areas in a manner which will not adversely affect federally listed species and/or designated critical habitat.
- Implement BMPs to keep stormwater and sediment out of the river. Fuels, lubricating fluids, herbicides, and any other chemicals should be stored in specified areas to prevent leaking into the river. During construction, all equipment must be inspected daily for leaks (Appendix C).
- If a dead, injured, or sick bull trout is encountered, notify the USFWS Field Office within 24 hours. Record information relative to the date, time, and location of dead or injured bull trout when/if found. Include any activities that were occurring at the location and time of injury and/or death of each fish and provide this information to USFWS.
- The typical timing window for construction using impact driving within or adjacent to bull trout critical habitat is a six-week window from July 15 to August 31. Although no impact driving is anticipated for the Project, those bore holes at the Cyr bridge below the OHWM will be drilled during this late summer/early fall time period. Noise levels associated with geotechnical drilling are expected to be similar to ambient river noise levels based on prior research (WSDOT 2015, Erbe and McPherson 2017).

Determination of Effect

The project is not anticipated to have short-term or long-term impacts on any of the parameters in the Matrix of Diagnostic Pathways. Work will occur during summer months when stream flows will likely be lower and water temperatures are warmer than during other seasons. As a result of these conditions, most bull trout are likely to have moved to habitats with cooler water temperatures. Bull trout are not expected to be present and therefore low intensity sound generation is not expected to affect bull trout. Noise and vibration from drilling activities, if transmitted to the water column, are not likely to exceed levels that are expected to cause harm to fish. Disturbance to bull trout, if present at project sites, would likely be limited to temporary displacement upstream or downstream of the work area when work begins each day and possibly result in fish returning each evening after work ceases.

Geotechnical drilling within the OHWM of the Clark Fork River is anticipated to occur during the late summer of 2023 when bull trout are less likely to be present and water levels are at their lowest. Potential impacts from the Project would be attributed to drilling activities adjacent to the river. Activities that could impact bull trout are related to noise disturbance and the potential for sedimentation downstream.

The Montana Bull Trout Restoration Plan states that adult bull trout reside in the Clark Fork River and spawn in smaller tributary streams. Additionally, drilling activities will occur below the OHWM but will be located above the waterline or “in the dry”, such areas are not likely to be accessible by spawning bull trout. Therefore, there is no suitable bull trout spawning habitat in the Action Area (MBTRP 2000). No direct mortality of incubating eggs or destruction of spawning redds is anticipated. It is expected that mobile subadults and adults would be able to move away from drilling operations into adjacent undisturbed areas and avoid temporary disturbances. The Project is unlikely to cause direct mortality of individual bull trout.

The proposed drilling technique typically includes rotary/casing advancer and rock core drilling methods with a water-tight conductor casing to seal borehole fluids from the river (Appendix A). The use of impact pile driving, vibratory hammer rotary drills, or down-the-hole-hammer pneumatic percussion drilling methods are not planned.

In the unlikely event that in-water drilling will occur, there is a potential for minor sedimentation and turbidity downstream of the bore locations. BMPs will be employed to minimize or eliminate drilling-related sediment from entering the river.

Potential impacts to bull trout and their designated critical habitat will be mitigated through the implementation of the Mitigation and Conservation Measures described above. Because the proposed Project will minimally impact the river and because of the BMPs and conservation measures that will be in place, the potential for effects from the project on bull trout critical habitat would be limited to small amounts of particles, debris or sediments generated from drilling activities. If construction generated sound reaches a bull trout occupied stream or drilling materials bypass BMPs, effects to individual bull trout are anticipated to be insignificant and discountable.

The Project “may affect, is not likely to adversely affect” bull trout and bull trout designated critical habitat.

4 Potential Cumulative Effects Analysis

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this preliminary biological assessment (USFWS 1998b). Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA. A cumulative impacts analysis examines the additive effect of the proposed action's residual impact (i.e., impacts remaining after applying avoidance and minimization measures) in relation to the residual impacts generated by past, present, and reasonably foreseeable actions within the cumulative analysis area.

A review of the MDT Tentative Construction Projects 2019-2023 identified several projects within the I-90 corridor in the vicinity of the I-90 Structures – West of Alberton Bridge Replacements: Old Highway 10, Clark Fork River, and Cyr Bridges | NHPB 90-1(239)65 | UPN 9786 project that would involve partial state funding. These include:

- IM 90-1(230)74: ALBERTON - E & W, Begin RP 74.4 to 84.2, Federal Fiscal Year 2020;
- NHPB STWD (349): STEEL BR REHAB - CORROSION 1, Begin RP 33.7 to 118.8 on westbound I-90 and RP 49.4 to 118.8 on eastbound I-90, Federal Fiscal Year 2029;
- STPS 507-1(10)0: ALBERTON - EAST, Begin RP 0.0 to 2.5 on Secondary 507, Federal Fiscal Year 2020; and
- STPB 31170(2): CYR BR REHAB - 3 M W ALBERTON, Federal Fiscal Year 2023.

The above-listed projects, because they would be receiving some federal funding, would require separate consultation pursuant to Section 7 of the ESA. No additional future federal, state, local, or private actions of regional significance that are reasonably certain to occur have been identified within the vicinities of the proposed project.

No long-term cumulative impacts are anticipated from the proposed project in conjunction with the above-listed projects.

5 References

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Appendix A: Geotechnical Drilling Technical Memo for Alberton Bridges Projects



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November 22, 2022

Project 20-3919S – R1

Mr. Jim Scoles, PE
Morrison-Maierle, Inc
Via Email: jscoles@m-m.net

Dear Jim:

Re: Supplemental Request No. 1, Proposal for Activity 130 and Activity 158 Geotechnical Services (Geotechnical Drilling, Laboratory Testing and Alignment Recommendations), Proposed I-90 Structures – West of Alberton, Missoula County, NHPB 90-1(239)65, UPN 9786

As you requested, we are please to provide this proposal for Activity 130 and Activity 158 geotechnical services for the above-referenced project. Our services will primarily include the geotechnical drilling and laboratory testing required for final foundation design by Dan Brown and Associates (DBA). Our services will also include final recommendations related to the alignment work away from the new Cyr and Clark Fork structures. DBA will complete the geotechnical analysis and recommendations for the bridge structures and slope modifications between bridge ends, if any. Each firm will peer review the others reports.

The geotechnical services will be performed on a cost-plus fixed fee basis in accordance with our approved 2019 indirect cost rate (IDC) agreed upon in our Standard Agreement with you dated October 23, 2020. We understand the overhead rate will remain "fixed" for the term of our contract. We propose to provide these services in general accordance with the MDT Geotechnical Manual, Materials Manual and Procedures, and Consultant User Manual Guidelines.

Our services for the project are outlined in the attached Scope of Services. Attached Table 2 summarizes our proposed borings, sampling and laboratory testing. The proposed boring locations at each bridge location are also shown on the attached drawings. A more detailed description of the project and our work is included in the attached Scope of Services. Estimated costs for our services will be provided after we have received comments from MDT on our proposed scope. Similar to Activity 106, we are submitting a contingency for one week of potential additional drilling costs due to the difficult drilling conditions. This will allow us to avoid delays if the drilling is slower than anticipated. The additional drilling contingency work will require prior approval before these costs are incurred.

We appreciate the opportunity to present this proposal and look forward to the continued work on the project. If you have any questions, please contact Cory Rice at your convenience.

Sincerely,



Cory G. Rice, PE
Senior Engineer



Gregory T. Staffileno, PE
Reviewing Engineer

Attachments:

Proposed Scope of Services

Preliminary Plan and Profile Drawings with Proposed Alignment Boring Locations (3)

Preliminary General Layout Drawings with Proposed Structure Boring Locations (2)

Proposed Access Road Maps

Table 2. Summary of Borings and Laboratory Tests

Table 3. Cost Estimate – Activity 130 and 158 (Pending)

Table 4. Cost Estimate – Activity 130 Drilling Contingency (Pending)

Drilling and Subcontractor Quotes (Pending)

SK Geotechnical Usage Cost Worksheet

Crux Subsurface

O'Keefe Drilling

Poteet Construction

St. Clair Construction

Proposed Scope of Services

Description of Project. The Montana Department of Transportation (MDT) is planning to replace two existing I-90 westbound bridge structures, west of Alberton, Montana. The structures planning to be replaced are:

- Bridge over Clark Fork River at Station 395+16.30 (Clark Fork)
- Bridge over Clark Fork River at Station 604+42.20 (Cyr)

The existing Clark Fork bridge is a 7-span structure with an overall span length of about 806 feet. This bridge has tall river piers with a total height of about 164 feet. It is currently planned to replace the structure with a 796-foot three-span structure. The end bents will be supported on driven pile and the intermediate piers on drilled shaft foundations. About 200 feet of roadway will be reconstructed on the west departure end of the bridge and about 252 feet on the east approach end. Due to the widened structure, the left-hand side embankment will need to be widened about 32 feet on the west end and about 30 feet on the east end. On the right-hand side, the embankment will need to be widened about 10 feet.

The Cyr bridge is a 9-span structure with a total span length of about 762 feet. This bridge is also relatively high with a height of approximately 123 feet between the current bridge deck and bottom of footing elevations. It is currently planned to replace the Cyr structure with 746-foot, four-span structure. The end bents and Pier No. 4 will be supported on driven pile foundations and Pier No. 2 and No.3 on drilled shaft foundations. Alignment work will consist of reconstructing about 200 feet of roadway at both the west departure end and the east approach end. Widened embankments are fairly limited with only about a 10-foot widening on the west end and a cut planned on the east end. The eastbound (EB) entrance ramp that travels beneath the east end of the bridge will be reconstructed for about 717 feet. The reconstruction is required to increase overhead clearance beneath the new structure by lowering the EB on-ramp grade by about 2 feet.

Preliminary design indicates intermediate pier foundations will consist of 8-foot diameter drilled shafts at locations with difficult access. Also, the drilled shafts at the Clark Fork structure are situated near steep bedrock cliffs overlooking the Clark Fork River. The drilled shafts at the Cyr structure are located within relatively large riprap or at the edge of the active river. Due to the large size and critical nature of the drilled shafts, it is desired to perform one boring directly at each shaft location, if possible.

Subcontractors. Accessing the boring/shaft locations will require traveling through heavy brush and trees, down steeper slopes and then completing the borings on steep slopes, riprap or at the active water edge. The borings at the Cyr structure are also relatively deep. For these borings, we propose to subcontract Crux Subsurface to complete these difficult borings with a platform-mounted drill rig set on the steep slopes. Even so, access roads will need to be constructed to allow equipment close to the borings for setting up the platform, and we propose to subcontract St. Clair Construction to complete this

work. Drilling through the bridge deck or lowering a platform from the deck were considered but were determined to be unfeasible due to the height and the limited roadway width.

The borings near the future bridge ends will generally be completed in the median or shoulder, except for the west bridge end boring for the Cyr structure. This boring will need to be completed within the driving lane due to existing guardrail. We have requested quotes from both Crux Subsurface and O'Keefe Drilling for this work. O'Keefe completed the borings during Activity 106 with their sonic rig which was able to penetrate the boulder layers when encountered.

For traffic control services, we propose to subcontract Poteet Construction from Missoula. Single lane closure will be required to support completion of the borings behind the guardrail and to complete the one boring in the driving lane of I-90 and the borings in the EB on-ramp.

Scope of Services

General. The geotechnical work will be conducted in general accordance with MDT's geotechnical guidelines outlined in their geotechnical and consultant user manuals. As we have discussed, we will be working jointly with Dan Brown and Associates (DBA). This arrangement has been successful on previous bridge projects. DBA will be submitting their proposal directly to MMI. Based on our discussions with DBA, SK Geotechnical is proposing to complete the geotechnical drilling, field logging, and laboratory testing for the Cyr and Clark Fork structures. We will provide field engineer(s) to accompany the drill rig(s) to log the soils and bedrock in the field and prepare preliminary field logs. The field logs will then be drafted in gINT and submitted.

We will complete laboratory testing on selected penetration tests, bag samples, and rock core samples. The final testing program will be coordinated with DBA, and the proposed laboratory tests are summarized on attached Table 2.

DBA will complete the engineering analysis and develop foundation recommendations for the new structures and any slope improvements between the future bridge ends. SK Geotechnical will provide final recommendations for the roadway reconstruction and slope widening parallel to the roadway. Our proposed scope of services is discussed in more detail below.

Reconnaissance, Subcontractor Coordination and Permitting. To facilitate the completion of the borings in the difficult locations, we propose to complete the following tasks:

- Perform a reconnaissance of the proposed boring locations to evaluate potential access routes and drilling subcontractor types,
- Meet with Crux Subsurface and St. Clair Construction to review drill access routes and clearing and grading requirements to develop quotes and permits for this work,

- Contact private landowners (Mr. Bob Atkinson, Mr. Dan Young and Montana River Guides) to discuss our proposed work and ask for approval to construct temporary access roads on their property.
- Provide descriptions of proposed work at the Cyr structure to allow MMI to complete a biological assessment letter for our work.
- Draft the Joint Application for Proposed Work in Montana’s Streams, Wetlands, Floodplains and Other Water Bodies application for review and submittal by MDT to the appropriate regulatory agencies. It is anticipated the required permits will consist of:
 - SPA 124 Permit – Department of Fish, Wildlife and Parks,
 - Section 404 Permit, Section 10 Permit – US Army Corps of Engineers
 - 318 Authorization – Montana Department of Environmental Quality
- Submit an Encroachment Permit Application to MDT.
- Develop subcontracts with selected companies for the access road construction, drilling and traffic control.
- After obtaining approval from the respective agencies, supervise tree cutting and clearing prior to April 15 or after August 16, 2023, to meet migratory bird requirements.
- Stake the desired borings locations and mark the preliminary access routes.
- Supervise access road and crane platform construction and restoration (described in further detail below).

Borehole Staking. Boring locations will generally be marked with a wooden stake with pink and blue flagging. Borings within the existing pavement will be marked with white spray paint with wooden offset stakes. After the fieldwork has been completed, a stake will be left at the borehole locations, and we have assumed MMI will survey the drilled locations and provide us with boring station, offset, surface elevations and coordinates. It should be noted, the intermediate pier borings at the Clark Fork structure will be on relatively steep slopes and it may be easier to survey the platform while drilling, but this would require additional trips. Please let us know your preference for scheduling of surveying.

Embankment and Roadway Soil Borings. To evaluate the future embankment widening at the Clark Fork structure, we propose to complete three borings in the future widened embankment areas as shown on the attached plan and profile drawing. We propose to extend these borings to a depth of 30 feet with our Mobile B-57 tracked drill rig. Borings for the widening at Cyr are not planned since only about 10 feet of widening is planned on the west end. The bridge end boring and as-built borings will be reviewed to evaluate settlement and if embankment foundation treatment is needed.

For the EB On-Ramp, we propose to complete two penetration test borings in the pavement to a depth of 10 feet to evaluate pavement and subgrade conditions. Please note this roadway does travel near a relatively steep bank overlooking the Clark Fork River with portions of the slope as steep as 1H:1V. This slope has a height of about 60 feet. The slope currently appears to be relatively stable, but likely does not meet a current generally accepted Factor of Safety (FOS). The on-ramp will lower the grade near the top of the slope, which should not reduce the overall FOS. Therefore, we have not included deeper soil

borings in this area to evaluate slope improvement methods. If needed, the deeper Boring ST-11 can be used, which was performed in this area during Activity 106.

At each pavement boring location, we will core the asphalt and measure the thickness of the existing plant mix, the underlying gravel base and perform penetration test samples at 2 1/2-foot vertical intervals to a depth of 10 feet. We will also obtain larger bag samples of the subgrade soils for classification, Proctor, and California bearing ratio (CBR) testing. These borings will require traffic control consisting of a single lane push or a single lane closure with flaggers to route traffic around the drilling operation. Upon completion of the borings, the borings will be backfilled with the on-site cuttings and patched with cold mix asphalt patch with a thickness similar to the existing asphalt, or a minimum of 6 inches, whichever is less.

Bridge Soil Borings.

General. To complete final foundation design, we are proposing to complete one deeper boring near each future bridge end (four total) and two deeper borings at each intermediate pier (eight total), excluding Pier No. 4 at the Cyr structure, where Boring ST-11 was completed during Activity 106. The proposed boring locations are shown on the attached General Layout drawing. A summary of the deeper borings is summarized in Table 1 following this page.

Table 1. Summary of Structure Borings

Boring	Structure	Approximate Surface Elevation	Estimated Bedrock Elevation	Target Elevation	Target Depth (feet)
Clark Fork Structure					
ST-14	Bent No. 1	2982	2865	2845	137
ST-15	Pier No. 2, Left	2900	2860	2810	90
ST-16	Pier No. 2, Right	2885	2860	2800	85
ST-17	Pier No. 3, Left	2900	2875	2825	75
ST-18	Pier No. 3, Right	2905	2885	2835	70
ST-19	Bent No. 4	3001	2885	2865	136
Subtotal					593
Cyr Structure					
ST-20	Bent No. 1	3003	2895	2880	123
ST-21	Pier No. 2, Left	2910	2825	2810	100
ST-22	Pier No. 2, Right	2910	2825	2810	100
ST-23	Pier No. 3, Left	2897	2850	2810	87
ST-24	Pier No. 3, Right	2897	2850	2810	87
ST-25	Bent No. 5	2995	2848	2830	165
Subtotal					662
Total					1,255

Access. The bridge end borings will generally be performed in the median or shoulder behind the guardrail. The exception will be Boring ST-20 to be performed at the west end of the Cyr structure. This boring will need to be performed in the driving lane due to existing guardrail on both sides. For all the bridge end borings, it will be necessary to close a single lane of traffic to provide space for support vehicles and equipment to provide materials and equipment for the drill rig. The borings in the median

may not require a lane closure if the existing jersey barrier can be temporarily opened on the east end of the EB Clark Fork structure. We propose to subcontract Poteet Construction to provide the necessary traffic control and temporarily open the barrier. Traffic control plans and an encroachment permit will be submitted to MDT for review and approval prior to the fieldwork.

For the intermediate borings at the Clark Fork and Cyr structure, we propose to subcontract St. Clair Construction to construct temporary access roads to allow a rough access terrain (RAT) crane, four-wheel drive support vehicles and equipment to get near the proposed boring locations. This will require clearing trees and grading a 12-foot wide access road to reach the boring locations. The approximate route of our access road is shown on the attached Preliminary Access Plans, and all four routes roughly follow what appears to be the original construction access road. Near the boring locations, an approximate 30-foot by 30-foot roughly level platform (four total) will need to be graded to allow the RAT crane to setup and place the platform for the drill rig to operate from. The crane platform will be constructed by St. Clair Construction and the drill platform by Crux Subsurface.

Erosion control measures consisting of straw waddles will be staked in place to control surface water run-off along the access roads and crane platforms. The trees within the access road will also be cut at the ground surface and left in-place on the downhill side of the access road to further reduce erosion. Root masses of smaller trees or brush will likely be removed with the grading. After the drilling has been completed, the crane platform and access road will be roughly regraded to its configuration prior to the access road construction and seeded with an approved seed mixture. Seeding is anticipated in the fall of 2023. We have not included replanting of trees or brush in our scope of services.

We propose to contact the three landowners described earlier to ask for approval to construct the temporary access roads across their property. We have assumed approval from governmental agencies will be obtained by MDT through the permit approval process. If the private landowners do not provide approval to our request, we have assumed additional negotiations will be completed by MMI or MDT, which could affect our proposed scope.

We have also assumed the existing Old Highway 10 at the Clark Fork and the boat parking area at the Cyr structure can be used for staging of drilling and support equipment, and this will be obtained through the permit approval process.

Drilling Methods. The bridge end borings will be deeper and need to extend through layers of very dense gravels, cobbles and some boulder layers. The cobbles and boulders are very difficult for more conventional geotechnical drilling methods such as hollow-stem auger and can also be difficult for mud rotary drilling. Therefore, we propose to subcontract O'Keefe Drilling and utilize their sonic drill rig, which was used for the Activity 106 drilling to allow easier penetration and sampling of the gravels, cobbles and boulders. However, a quote from Crux Subsurface has also been requested to evaluate if using only one drilling firm is more cost effective. Once bedrock is reached, HQ coring methods will then be used to the termination depth of the borehole. At the Clark Fork structure, Acoustic Televiwer (ATV) data will be obtained through the portion of the bedrock corehole that is water filled. It should be

noted, fractures within the bedrock may not allow water to stand in the borehole, which will prevent ATV measurements. The ATV services will also be provided by Crux Subsurface. The ATV data will be provided to DBA for review and interpretation.

We propose to subcontract Crux Subsurface for the intermediate borings. The intermediate borings have very difficult access and can only be accessed by a platform mounted drill using rotary/casing advancer methods down to the bedrock, and then HQ coring methods to the termination depth. We anticipate bedrock will be relatively shallow at the Clark Fork structure, but will be at a depth of 50 to 75 feet at the intermediate piers of the Cyr structure. Both structures will require drilling through boulder layers which can make the rotary/casing advancer methods more difficult and slower than anticipated. Therefore, a contingency for slower than anticipated drilling is possible. We have included a separate supplemental request for one additional week of drilling by Crux Subsurface for slower drilling as a contingency, to avoid delays while the work is being performed. We will obtain approval from MMI and MDT before these costs are incurred.

Laboratory Testing. Upon completion of the field drilling and sampling, the samples will be returned to our office for laboratory testing. The proposed laboratory tests are summarized on attached Table 2 and below.

- Moisture content tests on subgrade, base and penetration test samples,
- Sieve analysis and Atterberg limit tests,
- Moisture density curves on subgrade samples,
- Three-point CBR tests (CBR tests will be performed in lieu of R-value tests to determine subgrade resilient modulus),
- Consolidation,
- Soil and bedrock unconfined compression tests,
- Corrosion tests, pH, marble pH, resistivity, and sulfate tests (conducted in accordance with MT-232-16),
- Consolidated Undrained with pore pressure measurements (CU-Bar) triaxial shear tests.

Activity 130 Reports. Upon completion of our field and laboratory work, an Activity 130 Report will be prepared for each structure. The Activity 130 Reports will summarize the results of the field and laboratory work and provide the final recommendations for the following items:

- Final alternative pavement sections (I-90 WB and EB On-Ramp)
- Soft subgrade and stabilization alternatives
- Widened embankment settlement for embankments parallel to roadway
- Slope stability analysis of currently proposed cut and fill slopes parallel to the roadway that will be steeper than 3H:1V (excluding proposed slopes on east and west side of EB On-Ramp, which will be analyzed by DBA)
- Recommendations for excavatability

- Draft of Special Provisions for geotechnical alignment issues such as special borrow, embankment foundation treatment, subsurface drains, etc.

As indicated above, we will provide recommendation related to embankment sideslope construction parallel to the roadway. DBA will address embankment or slope improvement between the future bridge ends. DBA will also provide final foundation recommendations for the structures.

Meetings. We have assumed the following teleconference meetings:

- two preliminary design meetings,
- Plan-In-Hand meeting, and
- Final Plan Review meeting.

Peer and Plan Review. We also propose to perform a peer review of DBA's reports for the Clark Fork and Cyr bridge structures and provide written comments to MMI and DBA. We will also review the preliminary plans for PIH submittal.

Activity 158. This activity is related to reviewing the final special provisions and plans and profiles prepared by the civil consultant to confirm the geotechnical recommendations have been incorporated into these documents appropriately. It also includes review and responses to comments on the Final Activity 130 reports, if necessary. Also, the activity is needed to confirm the correct ESALs were used for the pavement design. If necessary, the Final Activity 130 reports will be revised addressing any changes. If few changes are anticipated, a letter will be provided indicating the plans and profiles and Special Provisions have been prepared in general accordance with our Activity 130 reports.



Schedule. We propose to draft the permit applications in December 2022 to increase the probability of being able to complete the tree clearing prior to April 15, 2023. The access road and drilling for the Clark Fork structure can then be completed in the spring or summer of 2023. The work at the Cyr structure will need to be completed in the late summer of 2023 when low water will allow access to Pier No. 3. It will be likely that more than one mobilization will be required for the drilling crew. This will also depend on contract negotiations, permit approval, driller availability and landowner permission. Currently, several months is typically required after contract and permit approval to schedule drilling crews. Also, weather will need to be 32 degrees and rising, since water will be used to flush cuttings from the boreholes, prevent icing of the roadway, and allow access on the existing slopes. Snow cover and freezing temperatures are too large of a safety concern due to the steep slopes that need to be traversed and operated on. Snow and freezing temperatures will delay drilling and the proposed schedule, if it occurs.

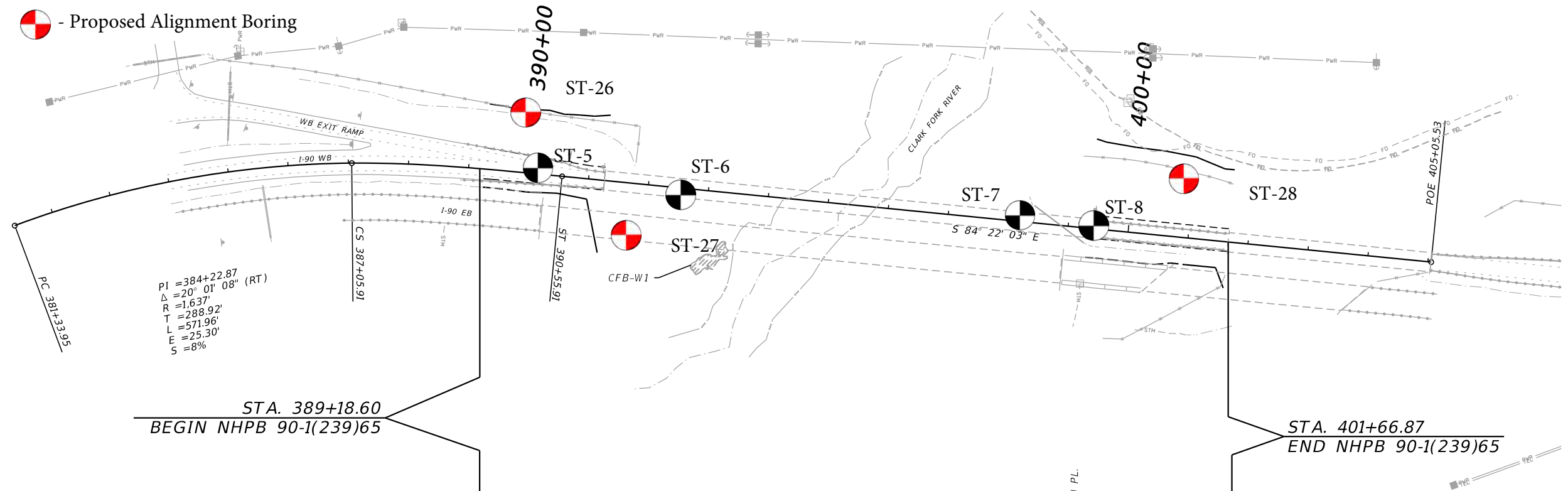
The initial coordination and reconnaissance have been completed. We have assumed permit submittal and approval will take about three months. We estimate the roadway borings will require about one week to complete, the bridge end borings about two weeks and the intermediate pier borings about four to six weeks. Laboratory testing will take about three months and the Activity 130 reports about two to three

months. We anticipate final lab testing and reports can be provided by February 2024, assuming no weather delays. Our Activity 158 report can be provided within about three weeks after receiving Preliminary Final Plans for review.

To facilitate the project schedule and reduce overall costs, we anticipate overtime will be required during our fieldwork. We anticipate laboratory overtime will also be required to process the triaxial shear tests in a timely manner.

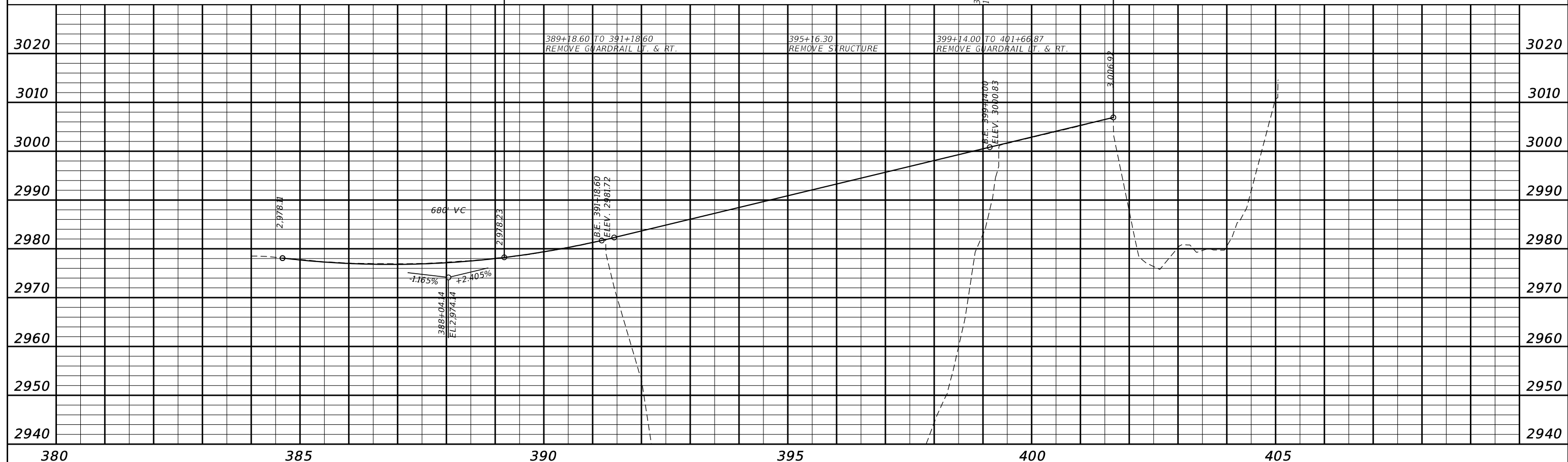
LEGEND

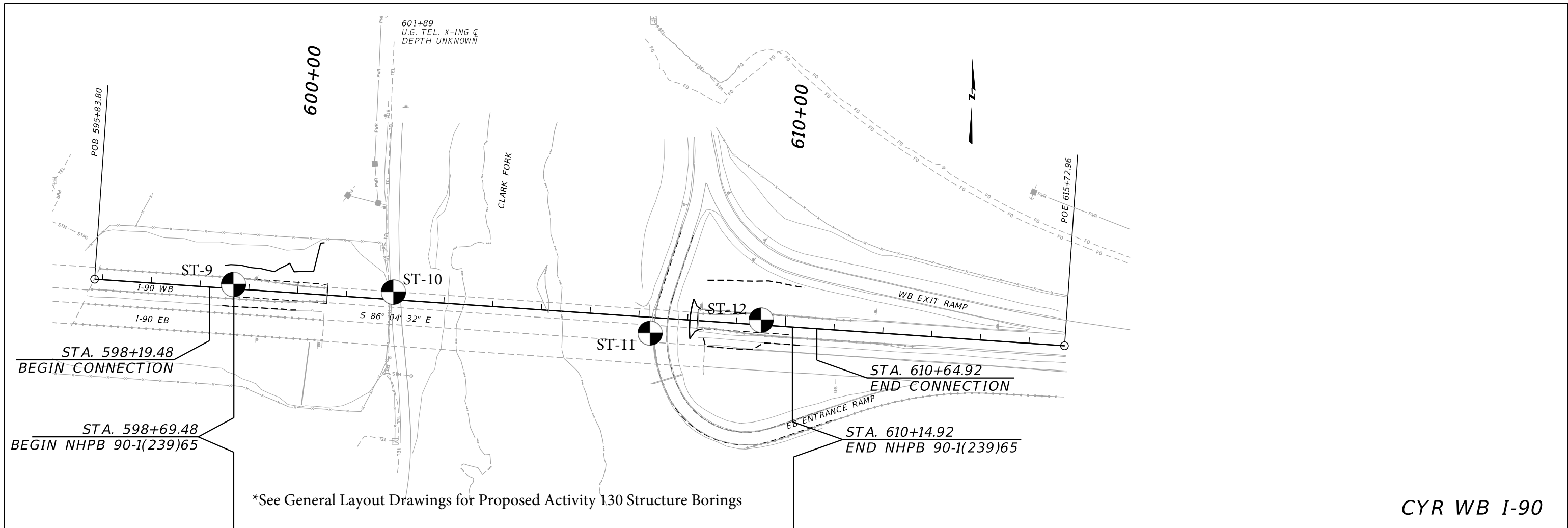
-  - Previous Activity 106 Boring
-  - Proposed Alignment Boring



*See General Layout Drawings for Proposed Activity 130 Structure Borings

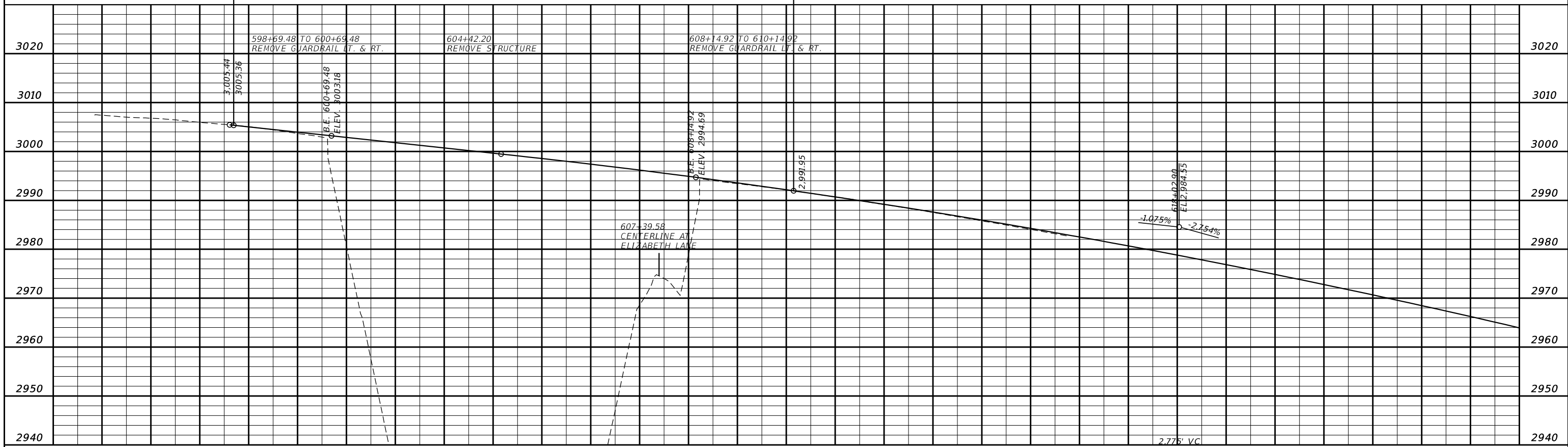
CLARK FORK WB I-90

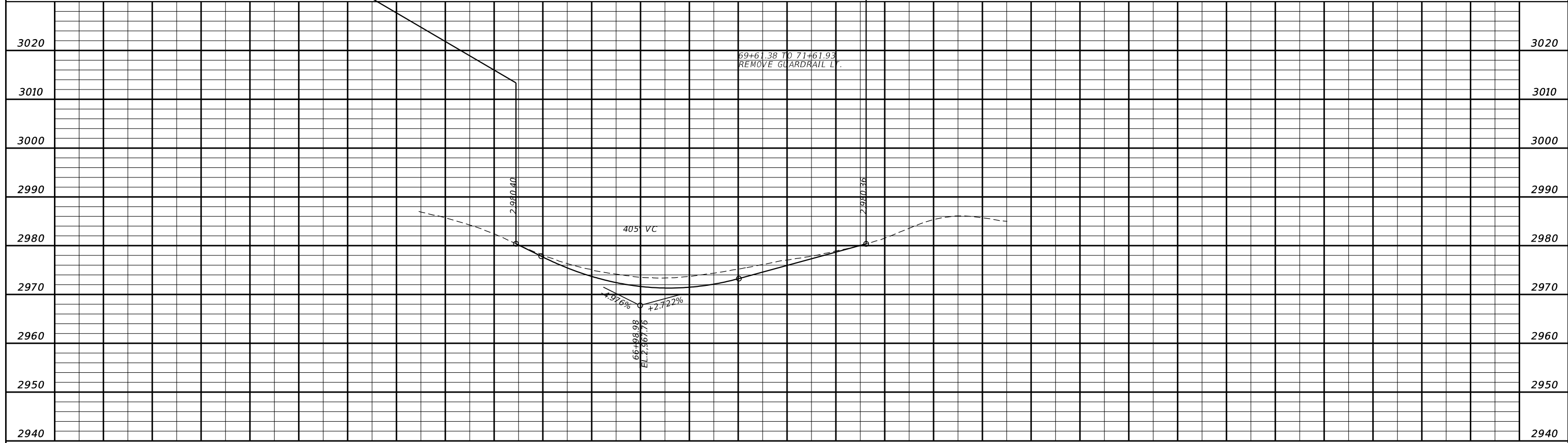
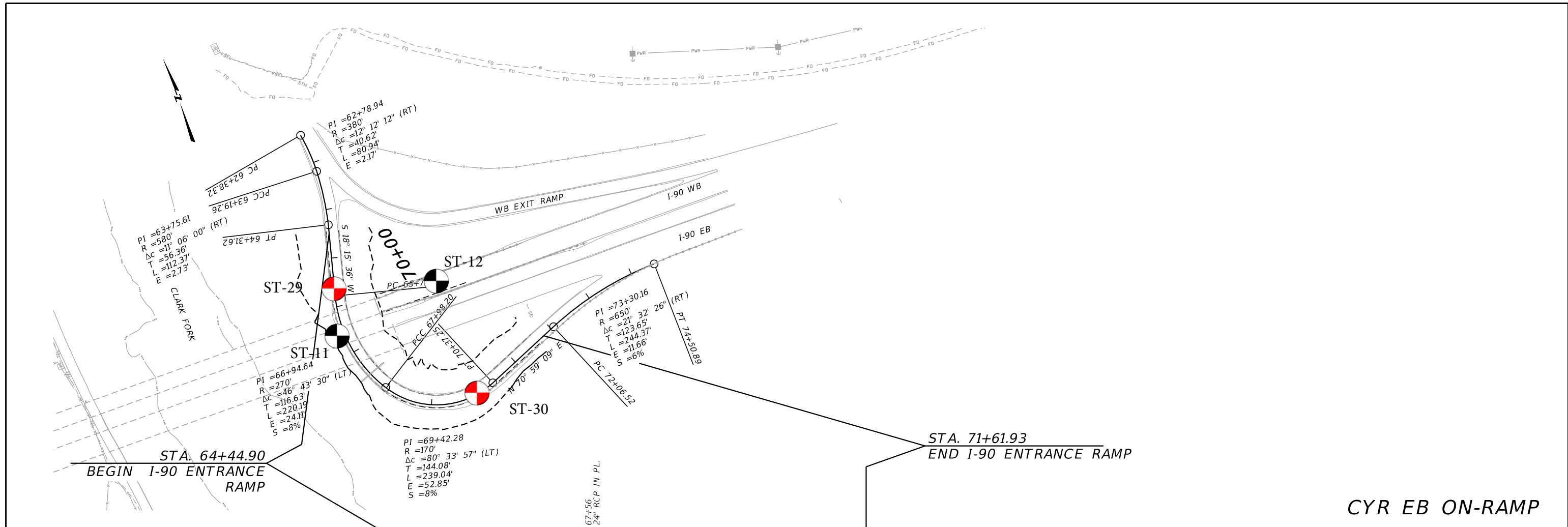







*See General Layout Drawings for Proposed Activity 130 Structure Borings

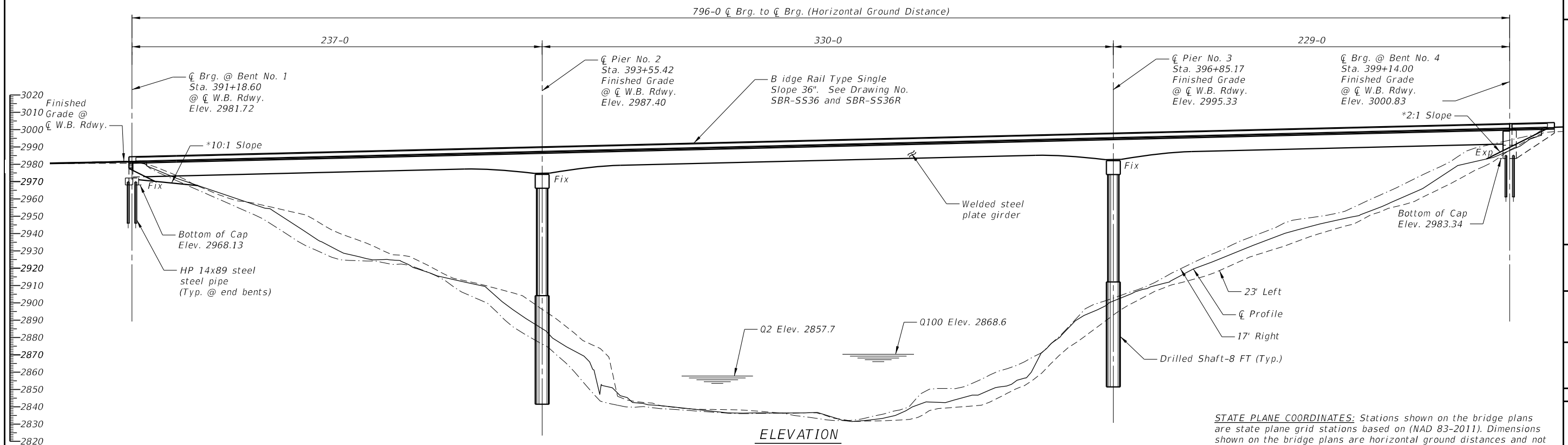
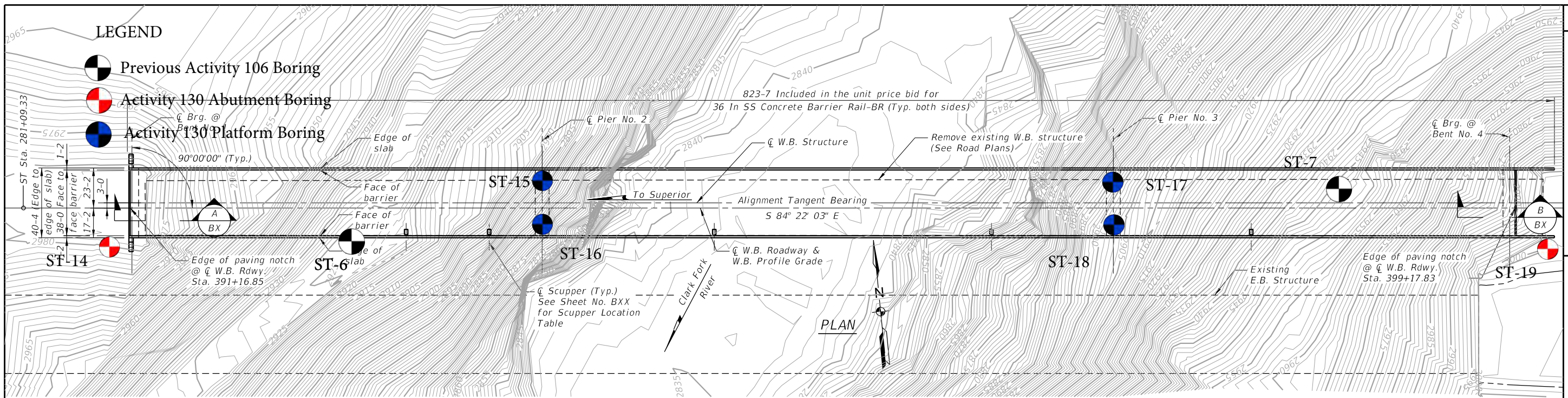
CYR WB I-90





LEGEND

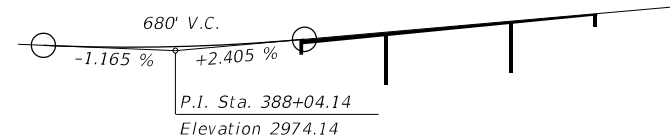
-  Previous Activity 106 Boring
-  Activity 130 Abutment Boring
-  Activity 130 Platform Boring



HYDRAULIC DATA

Drift:	Heavy
Low Scour Elev:	2831.5
Ice:	Moderate
Drainage Area:	9593 sq. mi.
2-year Stage (Q2):	2857.7
100-year Flood Flow (Q100):	69,964 cfs
*100-year Stage (Q100):	2868.6
100-year Velocity:	15.6 ft/s
Actual Low Beam Elevation:	2972.4
Allowable Low Beam Elevation:	2870.6

Also see Hydraulic Data Summary sheet.
*100-year Stage elevation includes backwater



STATE PLANE COORDINATES: Stations shown on the bridge plans are state plane grid stations based on (NAD 83-2011). Dimensions shown on the bridge plans are horizontal ground distances and not state plane grid distances. The combination scale factor (CSF) at this location is 0.99925082.

Horizontal ground distance x CSF = Grid Distance
Grid Distance/CSF = Distance to stake.

NOTE: Slab, barrier and girders are continuous over all Piers. See Sheet No. BXX thru BXX & Dwg. No. SBR-SS36 and SBR-SS36R.

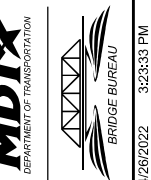
*NOTE: Slope varies and is 1.5:1 maximum. See Roadway Plans for grading details.

NOTE: Utilities not shown.

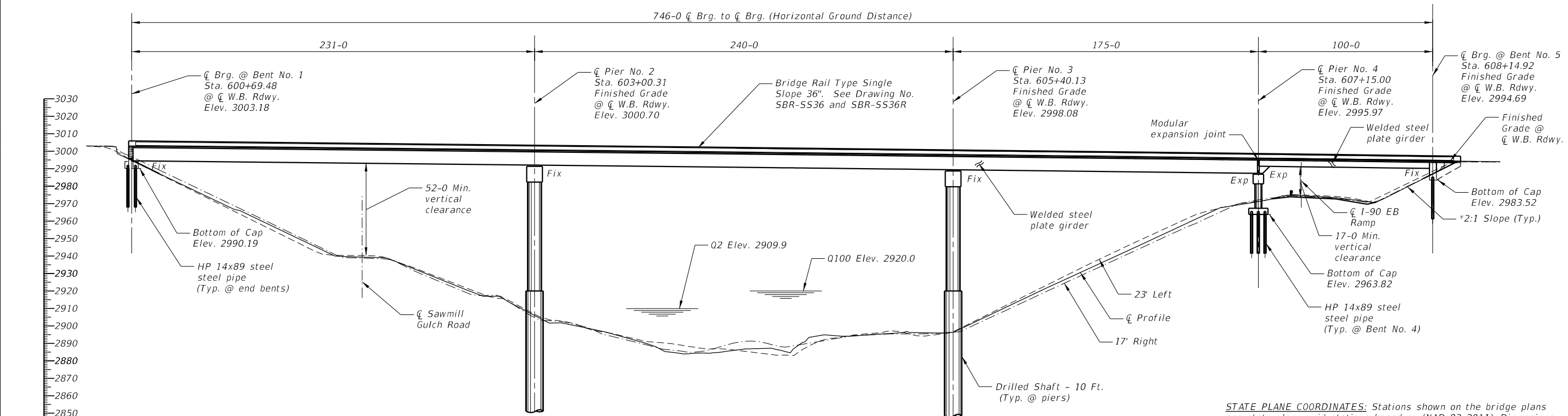
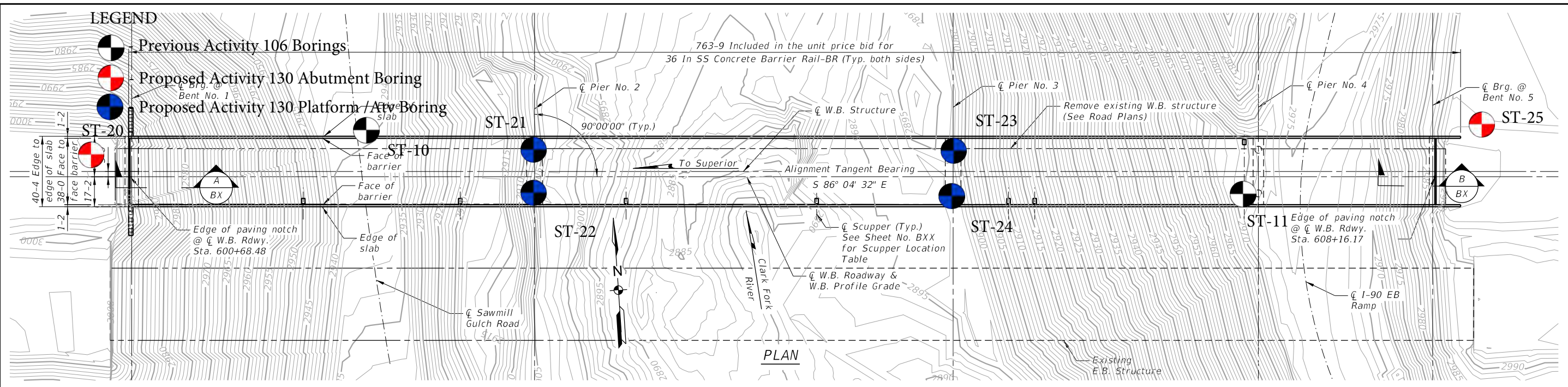
NOTE: Water surface on date of survey Elev. 2839.61 (09-28-2021)

NOTE: See Sheet No. BXX for scupper details and locations.

REVISED	REVISED	REVISED	REVISED	XX-XX-XX	X.X.X.
				04-06-22	D.A.D.
				04-02-22	J.G.S.



ROUTE I-90D
REF POINT XX+0.XXX
MDT STR. ID 01379
UPN NUMBER 9786000
DRAWING NO. XXXXX



HYDRAULIC DATA

Drift:	Heavy
Low Scour Elev.:	2,851.6
Ice:	Moderate
Drainage Area:	9,582 sq. mi.
2-year Stage (Q2):	2,909.9
100-year Flood Flow (Q100):	69,964 cfs
*100-year Stage (Q100):	2,920.0
100-year Velocity:	12.0 ft/s
Actual Low Beam Elevation:	2,986.9
Allowable Low Beam Elevation:	2,922.0

Also see Hydraulic Data Summary sheet.
*100-year Stage elevation includes backwater

STATE PLANE COORDINATES: Stations shown on the bridge plans are state plane grid stations based on (NAD 83-2011). Dimensions shown on the bridge plans are horizontal ground distances and not state plane grid distances. The combination scale factor (CSF) at this location is 0.99925199.

Horizontal ground distance x CSF = Grid Distance
Grid Distance/CSF = Distance to stake.

NOTE: Slab, barrier and girders are continuous over all Piers except Pier No. 4. See Sheet No. BXX thru BXX & Dwg. No. SBR-SS36 and SBR-SS36R.

* **NOTE:** Slope varies and is 2:1 maximum. See Roadway Plans for grading details.

NOTE: Utilities not shown.

NOTE: Water surface on date of survey Elev. 2896.52 (09-14-2021)

NOTE: See Sheet No. BXX for scupper details and locations.

GENERAL LAYOUT

BRIDGE OVER CLARK FORK RIVER

FEDERAL AID PROJECT NHPB 90-1(239)65

MINERAL COUNTY

PRELIMINARY

BRIDGE AT STA. 604+42.20

REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
			XX-XX-XX	04-12-22	03-28-22
			X.X.X.	D.A.D.	J.G.S.

...19786000BR9786000BRGEN205.dgn

4/26/2022 3:23:39 PM

ROUTE 1-90D

REF POINT XX+0.XXX

MDT STR. ID 01385



UPN NUMBER 9786000

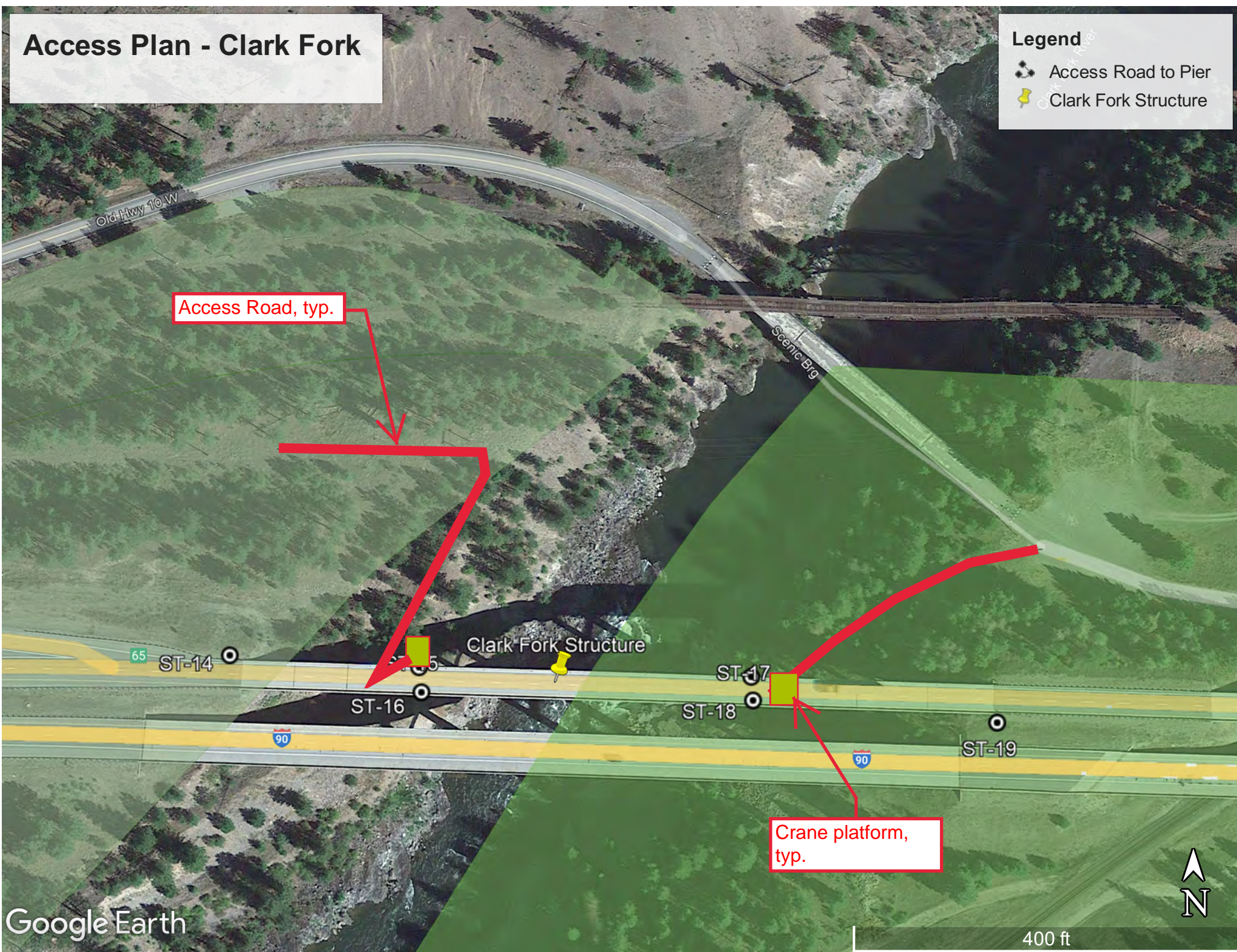
DRAWING NO. XXXXX

SCALE: 1" = 30'-0" Except as noted

Access Plan - Clark Fork



Legend

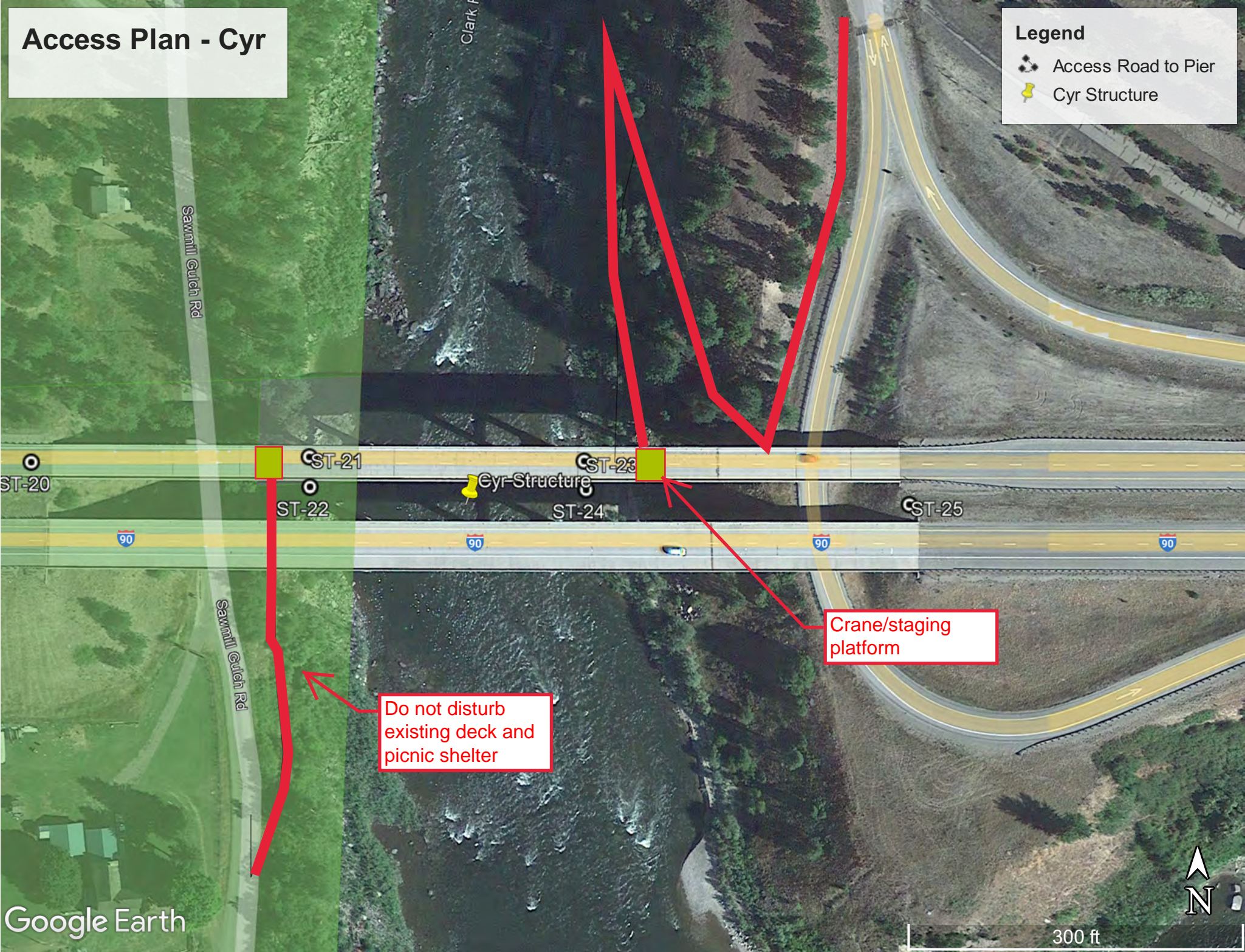
-  Access Road to Pier
-  Clark Fork Structure



Access Plan - Cyr

Legend

-  Access Road to Pier
-  Cyr Structure



Do not disturb existing deck and picnic shelter

Crane/staging platform



Table 2. Summary of Borings and Laboratory Tests

Location/Structure	Number of Borings	Boring Type (See Below)	Drilling Unit Required					Laboratory Tests												Comments
			Backhoe	Truck-Mounted Drill Rig		ATV-Mounted Drill Rig		Moisture Content	Unit Weight	Sieve Analysis	Atterberg Limits	Specific Gravity	Proctor	R-Value (CBR)	Corrosion	Unconfined Compression	Consolidation	Triaxial Shear	Direct Shear	
			Test Pit Depth (ft)	Auger Boring Depth (ft)	Coring/Rotary Boring Depth (ft)	Auger, Rotary or Sonic Core Depth (ft)	HQ- Coring Depth (ft)													
Alignment																				
Clark Fork, W Widened Slope	1	HSA				30		10		1	1							1		
Clark Fork, E Widened Slope	1	HSA				30		10		1	1							1		
Clark Fork, E Widened Slope	1	HSA				30		10		1	1									
Cyr, EB On-Ramp	1	HSA		10				7		1	1	1	1	1						Traffic control, single lane push
Cyr, EB On-Ramp	1	HSA		10				7		1	1	1	1	1						Traffic control, single lane push
Subtotal	5		0	20	0	90	0	44	0	5	5	2	2	2	0	0	2	0	0	
Structures																				
Clark Fork, Bent 1	1	Sonic/Core				122	15	24		3	2				2	2				Median
Clark Fork, Pier 2, L	1	Platform				40	50	8		2	1					6				
Clark Fork, Pier 2, R	1	Platform				45	50	9		2	1					6				
Clark Fork, Pier 3, L	1	Platform				25	50	5		1	2					6			1	
Clark Fork, Pier 3, R	1	Platform				20	50	4		1	2					6			1	
Clark Fork, Bent 4	1	Sonic/Core				121	15	24		3	1				2	2				Median
Cyr, Bent 1	1	Platform				108	15	22		3	4				2	2			1	
Cyr, Pier 2, L	1	Platform				60	40	12			3					5			1	
Cyr, Pier 2, R	1	Platform				60	40	12		1	2					5			1	
Cyr, Pier 3, L	1	Platform				47	40	10			3					5			1	
Cyr, Pier 3, R	1	Platform				47	40	10		1	2					5			1	
Cyr, Bent 5	1	Sonic/Core				150	15	30		2	4				2	2			1	
Subtotal	12		0	0	0	845	420	170	0	19	27	0	0	0	8	52	0	8	0	
Culverts																				
Streambed Samples																				
TOTAL	17		0	20	0	935	420	214	0	24	32	2	2	2	8	52	2	8	0	

HSA - Hollow-stem auger drilling
 BB - Bridge boring, combines hollow-stem auger and rotary and/or coring
 RC - Rock core
 TP - Test pit with backhoe

**Appendix B: United States Fish and Wildlife Service
Threatened and Endangered Species Report**



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Montana Ecological Services Field Office
585 Shephard Way, Suite 1
Helena, MT 59601-6287
Phone: (406) 449-5225 Fax: (406) 449-5339

In Reply Refer To:
Project Code: 2023-0070606
Project Name: Alberton Geotechnical

April 18, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Migratory Birds
 - Wetlands
-

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Montana Ecological Services Field Office

585 Shephard Way, Suite 1

Helena, MT 59601-6287

(406) 449-5225

PROJECT SUMMARY

Project Code: 2023-0070606
Project Name: Alberton Geotechnical
Project Type: Subsurface Exploration - Non Energy Materials
Project Description: Geotechnical boring
Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@47.01921305,-114.658897025,14z>



Counties: Mineral County, Montana

ENDANGERED SPECIES ACT SPECIES

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Canada Lynx <i>Lynx canadensis</i> Population: Wherever Found in Contiguous U.S. There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Grizzly Bear <i>Ursus arctos horribilis</i> Population: U.S.A., conterminous (lower 48) States, except where listed as an experimental population There is proposed critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/7642	Threatened
North American Wolverine <i>Gulo gulo luscus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

BIRDS

NAME	STATUS
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

FISHES

NAME	STATUS
Bull Trout <i>Salvelinus confluentus</i> Population: U.S.A., conterminous, lower 48 states There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8212	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Bull Trout <i>Salvelinus confluentus</i> https://ecos.fws.gov/ecp/species/8212#crithab	Final

**Appendix C: United States Fish and Wildlife Survey
Comment Letter for Alberton Bridges Project**



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Montana Ecological Services Office
585 Shepard Way, Suite 1
Helena, Montana 59601-6287



In Reply Refer to:
FWS/IR05/IR07
M.17 FHWA;
06E11000-2021-TA-0552

July 1, 2021

Joe Weigand
Montana Department of Transportation
2701 Prospect
PO Box 201001
Helena, Montana 59620-1001

Dear Mr. Weigand:

This responds to your June 10, 2021 letter requesting comments on the proposed I-90 Structures—W of Alberton (NHPB 90-1(239)65; UPN 9786000) project. The purpose of this project would be to replace three westbound bridges along I-90 at Old Highway 10 (route post [RP] 65.5), Clark Fork River (RP 66.3), and Cyr (RP 70.1). The latter two bridges cross the Clark Fork River. The project is located west of Alberton, Montana, in Mineral County. The Service received your letter, a location map, and the Preliminary Field Review Report for the project on June 10, 2021.

Our comments are prepared under the authority of, and in accordance with, the provisions of the Endangered Species Act (ESA; 16 U.S.C. 1531 et. seq.), Migratory Bird Treaty Act (MBTA; 16 U.S.C. 703 et seq.), and Bald and Golden Eagle Protection Act (BGEPA; 16 U.S.C. 668-668d, 54 Stat. 250). We offer the following comments for your consideration.

Threatened and Endangered Species

The current list of candidate, proposed, threatened or endangered species, and designated critical habitat occurring in Mineral County, Montana is as follows:

<i>Scientific Name</i>	<i>Common Name</i>	<i>Status*</i>
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Pinus albicaulis</i>	Whitebark Pine	P

*LE=Listed as Endangered, LT=Listed Threatened, P = Proposed, C = Candidate

INTERIOR REGION 5 MISSOURI BASIN

KANSAS, MONTANA*, NEBRASKA, NORTH DAKOTA,
SOUTH DAKOTA

*PARTIAL

INTERIOR REGION 7 UPPER COLORADO RIVER BASIN

COLORADO, NEW MEXICO, UTAH, WYOMING

Additional information may be obtained using the Service Information for Planning and Consultation (IPaC) project-planning tool, at <https://ecos.fws.gov/ipac/>.

Under the ESA, a Federal agency that authorizes, funds, or carries out a proposed action is required to evaluate the action with respect to effects to threatened or endangered species and critical habitat. If the Federal agency, or its delegated agent, determines that the action “may affect” listed species and/or designated critical habitat, the Federal agency is required to enter into section 7 consultation with the Service. It is the responsibility of the Federal agency to ensure that its actions are in compliance with the ESA. Further technical assistance can be provided if you have additional questions regarding project impacts to listed species, or future ESA responsibilities.

From the species listed above, the proposed bridge replacements crossing the Clark Fork River at route posts 66.3 and 70.1 have the greatest potential to adversely affect the threatened bull trout and designated bull trout critical habitat. Bull trout local populations in this Middle Clark Fork River Core Area are at dangerously low population levels, with many bordering on extirpation. For these reasons, the Service respectfully requests that the Department and Federal Highway Administration employ highly effective conservation measures in order to minimize adverse effects to these populations. As such, these bridge replacements are most likely to adversely affect bull trout and their designated critical habitat through: (1) long-term sediment and chemical contaminant inputs if bridge stormwater runoff is discharged directly into the Clark Fork River; (2) short-term adverse effects from barotraumas and temporary barriers to movement through the project area if there is impact pile driving; (3) short-term effects from potential sediment and chemical contaminant inputs during the construction process; and (4) short-term barriers to movement if the existing bridges are demolished by dropping them into the river below and dragging them out. In order to minimize the potential for these short- and long-term effects, the Service recommends the following conservation measures in the design and implementation of the proposed project:

1. If possible, use drilled shafts for installation of the foundation systems or utilize the foundations of the existing structures.
2. If impact pile driving must be used for the construction of temporary and permanent facilities, it may occur between July 15 and August 31. This includes dry land and in-water impact pile driving, and is intended to reduce the risk of barotraumas for bull trout.
3. Should piles be driven outside of the above work window:
 - a. Limit the periods of driving pile to no more than 12 hours/day, except in rare circumstances, when safety issues require completion of work begun that day. The project manager must be notified and approve driving pile in excess of 12 hours/day.
 - b. Conduct hydroacoustic monitoring. Through hydroacoustic monitoring, it is possible that the physical harm thresholds of the peak sound pressure level (SPL) of 206 dB (re: 1 μ Pa) or the cumulative sound exposure level (SEL) of 187 dB (re: 1 μ Pa) may be attained or exceeded during the calibration exercise. The calibration period will be limited in duration with the purpose of obtaining a

representative sample of piles (e.g., size and materials) and locations to ensure that the appropriate sound information is collected for use in the National Marine Fisheries Service Calculator Tool. In combination with hydroacoustic monitoring, use one of the following measures:

- i. Use a vibratory hammer to drive piles to such a point when an impact hammer will be required to drive the pile to the point of completion. Use of drilled shafts or vibratory hammers is preferable to impact pile driving because the risk of barotraumas is extremely low for these two methods. OR;
 - ii. For production pile driving, use a “soft start” or “ramp up” pile driving (e.g., driving does not begin at 100% energy) to encourage fish to vacate the surrounding area and use the information collected during hydroacoustic monitoring calibration and the National Marine Fisheries Service Calculator Tool to determine how many pile strikes can occur during a day, based on pile type and size, prior to reaching the cumulative sound exposure level (SEL) threshold of 187 dB. Once the number of strikes has been attained, impact pile driving must be stopped for the day. If driving pile with an impact hammer over consecutive days outside the work windows in 1) above, do not drive piling between the hours of 9:00 PM and 6:00 AM OR;
 - iii. Use Department-approved noise reduction methods, such as those offered in Leslie and Schwertner (2013) (e.g., bubble curtain, cofferdams).
4. Monitor all dewatering activities visually to ensure bull trout are not trapped. In the unlikely event a live bull trout is found within a dewatering area, immediately return it to the river.
 5. Instream removal of bridge piers should occur during low water (July 15 through October 15).
 6. No construction equipment is allowed to operate within the active channel unless permitted to do so.
 7. Materials excavated from inside any coffer dams shall not enter any waterbody, and if so, will be removed.
 8. To the maximum extent practicable, disassemble and remove the existing bridges without pieces being allowed to fall into the river. If debris or portions of the existing bridge enter the river during demolition, within two (2) days completely remove them from the river without dragging the material along the streambed.
 9. Any blasting required during demolition will be contained to the maximum extent practicable using some type of containment shielding device to attenuate the blast’s pressure wave within the water and to prevent debris from entering the river. Meet all applicable requirements contained within Department’s Standard Specifications Section 204 – Blasting.

10. Upon locating dead or injured bull trout, notify the Department's Project Manager and contact the USFWS Field Office at (406) 449-5225 within 24 hours. Record information relative to the date, time, and location of dead or injured bull trout when/if found. Include any activities that were occurring at the location and time of injury and/or death of each fish and provide this information to the USFWS.
11. Conduct project-related activities outside of construction limits in a manner which will not adversely affect species and/or designated critical habitat listed under the Endangered Species Act.
12. Stormwater facilities for the proposed I-90 bridges should be designed such that direct discharges to the Clark Fork River are eliminated or minimized through buffers and/or appropriate sloping.
13. Ensure best management practices (BMPs) are applied to this project, including, but not limited to:
 - a. installing and maintaining appropriate structural BMPs to prevent erosion and sediment transport from entering state waters;
 - b. reseeded and revegetating all disturbed areas with desirable vegetation excluding areas below the ordinary high water mark
 - c. stabilizing disturbed channel banks using appropriate structural BMPs; and
 - d. conducting work to minimize disturbance to riparian vegetation.
14. Collect and dispose of all waste fuels, lubricating fluids, herbicides, and other chemicals in accordance with all applicable laws, rules, and regulations to ensure no adverse environmental impacts will occur.
15. During active construction periods, inspect equipment daily to ensure hydraulic, fuel, and lubrication systems are in good condition and free of leaks to prevent these materials from entering any water body.
16. Locate vehicle servicing and refueling areas, fuel storage areas, and construction staging and materials storage areas to ensure that spilled fluids or stored materials do not enter any water body.
17. Monitor structures designed to minimize sediment and pollutant discharges such as settling ponds, vehicle and fuel storage areas, hazardous materials storage sites, erosion control structures, and coffer dams each workday and immediately following precipitation events to ensure these structures are functioning properly. These structures should be sized appropriately to handle foreseeable precipitation events and stream flow conditions.
18. Any detention basin outlets will be designed such that they are stabilized to prevent streambank erosion and will not otherwise impact the stream channel bank.

19. Keep in-water work within the river channel to the minimum amount necessary. This includes, but is not limited to, construction and removal of any temporary support structures that may be necessary and riprap placement below the ordinary high-water mark. In-water construction work shall be completed in the shortest amount of time practicable.
20. Do not operate construction equipment within the active channel of any water body unless allowed by temporary facilities permits and approved by the Department's Project Manager. Schedule construction activities to ensure as much of the work as practicable is completed during periods of low water levels.
21. Should in-water activities displace channel features (e.g., large woody debris, boulders, etc.), restore the channel to the conditions that existed prior to project commencement, unless included in the contract.
22. Span channel such that piers are located outside the ordinary high water mark to the extent practicable.

Migratory Birds

The MBTA prohibits the purposeful taking, killing, possession, and transportation, (among other actions) of migratory birds, their eggs, parts, and nests, except when specifically permitted. If work is proposed to take place in migratory bird habitats that may result in take of migratory birds, their eggs, or active nests, the Service recommends that the project proponent take all practicable measures to avoid and minimize take, such as maintaining adequate buffers, to protect the birds until the young have fledged. Active nests may not be removed. The Service has developed, and continues to revise and develop, general and industry-specific conservation measures for avoiding and minimizing impacts to birds (<https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>). We recommend that the proposed project consider and incorporate these measures into project design, construction, and documentation as appropriate.

Bald and Golden Eagles

The Service is aware of several active golden eagle territories within the project area. However, only one nest is approximately 0.1 mile away from the I-90 bridge crossing at Old Highway 10 (RP 65.5), and is a cause for concern. We highly recommend that you contact Montana Fish, Wildlife and Parks for the most recent information regarding the territory and nest locations, and begin to explore options pursuing a disturbance take permit for bald eagles under the BGEPA.

The bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are protected from a variety of harmful actions via take prohibitions in both the MBTA¹ (16 U.S.C. 703-712)

¹ On December 22, 2017, the Department of the Interior's (DOI) Office of the Solicitor Memorandum M-37050 titled The Migratory Bird Treaty Act Does Not Prohibit Incidental Take (<https://www.doi.gov/sites/doi.gov/files/uploads/m-37050.pdf>) concludes that the MBTA's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same apply only to affirmative actions that have as their

and the BGEPA. The BGEPA, enacted in 1940 and amended several times, prohibits take of bald eagles and golden eagles, including their parts, nests, young or eggs, except where otherwise permitted pursuant to Federal regulations. Incidental take of eagles from actions such as electrocutions from power lines or wind turbine strikes are prohibited unless specifically authorized via an eagle incidental take permit from the Service. BGEPA provides penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The BGEPA defines take to include the following actions: "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." The Service expanded this definition by regulation to include the term "destroy" to ensure that "take" also encompasses destruction of eagle nests. Also the Service defined the term disturb which means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

The Service has developed guidance for the public regarding means to avoid take of bald and golden eagles:

- The 2007 National Bald Eagle Management Guidelines serve to advise landowners, land managers, and others who share public and private lands with bald eagles when and under what circumstances the protective provisions of BGEPA may apply. They provide conservation recommendations to help people avoid and/or minimize such impacts to bald eagles, particularly where they may constitute "disturbance," which is prohibited by the BGEPA.
<https://www.fws.gov/northeast/ecologicalservices/pdf/NationalBaldEagleManagementGuidelines.pdf>
- The 2013 Eagle Conservation Plan Guidance, Module 1- Land-based Wind Energy, Version 2 is specific to wind energy development and provides in-depth guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities. Development of an Eagle Conservation Plan per these guidelines may serve as the basis for applying for an eagle incidental take permit for wind energy facilities. Applications for such eagle incidental take permits must include an Eagle Conservation Plan.
<https://www.fws.gov/migratorybirds/pdf/management/eagleconservationplanguidance.pdf>

The Service also has promulgated new permit regulations under BGEPA:

purpose the taking or killing of migratory birds, their nests, or their eggs. The MBTA list of protected species includes bald and golden eagles, and the law has been an effective tool to pursue incidental take cases involving eagles. However, the primary law protecting eagles is the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S. Code § 668), since the bald eagle was delisted under the Endangered Species Act in 2007. Memorandum-37050 does not affect the ability of the Service to refer entities for prosecution that have violated the take prohibitions for eagles established by the BGEPA.

- New eagle permit regulations, as allowed under BGEPA, were promulgated by the Service in 2009 (74 FR 46836; Sept. 11, 2009) and revised in 2016 (81 FR 91494; Dec. 16, 2016). The regulations authorize the limited take of bald and golden eagles where the take to be authorized is associated with otherwise lawful activities. These regulations also establish permit provisions for intentional take of eagle nests where necessary to ensure public health and safety, in addition to other limited circumstances. The revisions in 2016 included changes to permit issuance criteria and duration, definitions, compensatory mitigation standards, criteria for eagle nest removal permits, permit application requirements, and fees in order to clarify, improve implementation and increase compliance while still protecting eagles.
<https://www.gpo.gov/fdsys/pkg/FR-2016-12-16/pdf/2016-29908.pdf>

The Service's Office of Law Enforcement carries out its mission to protect eagles through investigations and enforcement, as well as by fostering relationships with individuals, companies, industries and agencies that have taken effective steps to avoid take, including incidental take of these species, and encouraging others to implement measures to avoid take. The Office of Law Enforcement focuses its resources on investigating individuals and entities that take eagles without identifying and implementing all reasonable, prudent and effective measures to avoid that take. Those individuals and entities are encouraged to work closely with Service biologists to identify available protective measures, and to implement those measures during all activities or situations where their action or inaction may result in the take of an eagle(s).

In addition to the above guidance, the 2010 Montana Bald Eagle Management Guidelines: An Addendum to Montana Bald Eagle Management Plan (1994) developed by Montana Fish, Wildlife and Parks (FWP) also provides guidance for avoiding and minimizing the risk for bald eagle take (<http://fwp.mt.gov/fwpDoc.html?id=44181>).

Additional Comments

If wetlands will be affected by the project, the Service recommends keeping wetland disturbances to the minimum extent and duration possible, with as much occurring "in the dry" as possible. This would reduce impacts to aquatic species relative to disturbance and sediment inputs. We also recommend that appropriate erosion and sediment control efforts and measures be implemented during and following construction to avoid introducing sediments or other contaminants to adjacent waters.

In addition to coordination with the Service, we recommend coordination with FWP and the Montana Natural Heritage Program. These agencies may be able to provide updated, site-specific information regarding fish, wildlife, and sensitive plant resources occurring in the proposed project area. Contact information for these two agencies is below:

Montana Fish, Wildlife and Parks
1420 East Sixth Avenue
P.O. Box 200701
Helena, Montana 59620-0701
Phone: (406) 444-2535

Montana Natural Heritage Program
1515 East 6th Avenue, Box 201800
Helena, Montana 59620-1800
Phone: (406) 444-5354

Thank you for the opportunity to comment on the proposed project. The Service appreciates your efforts to incorporate fish and wildlife resource concerns into your project planning. If you have further questions related to this letter, please do not hesitate to contact Mike McGrath at mike_mcgrath@fws.gov, or 406-430-9009.

Sincerely,



for Jodi L. Bush
Office Supervisor

cc: Bill Semmens, Montana Department of Transportation, Helena, Montana

**Appendix D: MT Natural Heritage Program
Environmental Summary Report
for Alberton Bridges Projects**



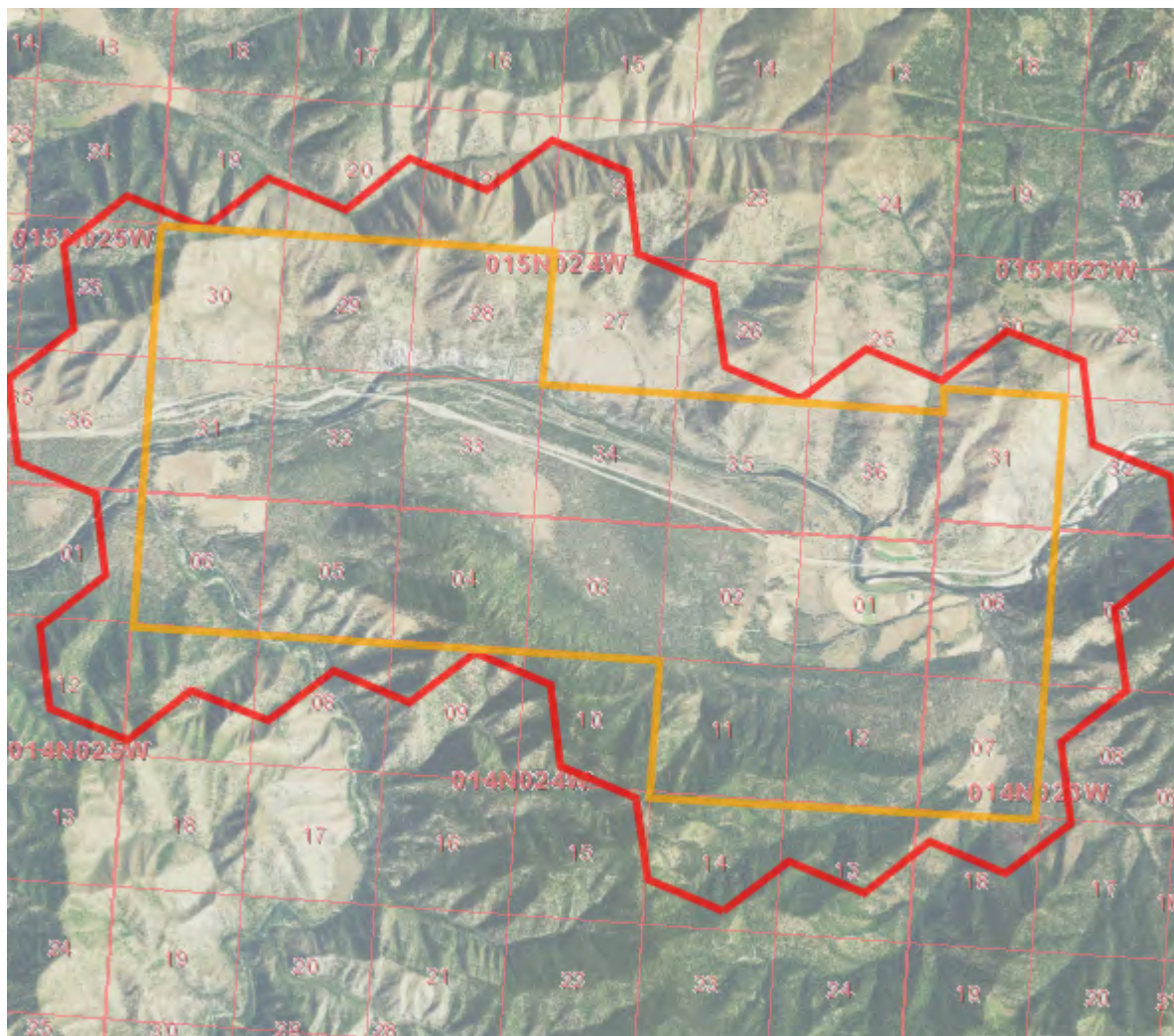
MONTANA
**Natural Heritage
 Program**

1515 East 6th Avenue
 Helena, MT 59620
 (406) 444-5363
mtnhp.org



Latitude	Longitude
46.96051	-114.53141
47.05262	-114.70933

Summarized by:
23MT0003 - Alberton Geotech Biological Assessment
(Custom Area of Interest)



Suggested Citation

Montana Natural Heritage Program. Environmental Summary Report.
 for Latitude 46.96051 to 47.05262 and Longitude -114.53141 to -114.70933. Retrieved on 2/2/2023.

The Montana Natural Heritage Program is part of the Montana State Library's Natural Resource Information System. Since 1985, it has served as a neutral and non-regulatory provider of easily accessible information on Montana's species and biological communities to inform all stakeholders in environmental review, permitting, and planning processes. The program is part of NatureServe, a network of over 80 similar programs in states, provinces, and nations throughout the Western Hemisphere, working to provide current and comprehensive distribution and status information on species and biological communities.



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Introduction to Environmental Summary Report

Environmental Summary Reports from the Montana Natural Heritage Program (MTNHP) provide information on species and biological communities to inform all stakeholders in environmental review, permitting, and planning processes. For information on environmental permits in Montana, please see permitting overviews by the [Montana Department of Environmental Quality](#), the [Montana Department of Natural Resources and Conservation](#), the [Index of Environmental Permits for Montana](#) and our [Suggested Contacts for Natural Resource Management Agencies](#). The report for your area of interest consists of introductory and related materials in this PDF and an Excel workbook with worksheets summarizing information managed in the MTNHP databases for: (1) species occurrences; (2) other observed species without species occurrences; (3) other species potentially present based on their range, presence of associated habitats, or predictive distribution model output if available; (4) structured surveys that follow a protocol capable of detecting one or more species; (5) land cover mapped as ecological systems; (6) wetland and riparian mapping; (7) land management categories; and (8) biological reports associated with plant and animal observations. If your area of interest corresponds to a statewide polygon layer (e.g., watersheds, counties, or public land survey sections) information summaries in your report will exactly match those boundaries. However, if your report is for a custom area, users should be aware that summaries do not correspond to the exact boundaries of the polygon they have specified, but instead are a summary across a layer of hexagons intersected by the polygon they specified as shown on the report cover. Summarizing by these hexagons which are one square mile in area and approximately one kilometer in length on each side allows for consistent and rapid delivery of summaries based on a uniform grid that has been used for planning efforts across the western United States (e.g., Western Association of Fish and Wildlife Agencies - [Crucial Habitat Assessment Tool](#)).

In presenting this information, MTNHP is working towards assisting the user with rapidly assessing the known or potential species and biological communities, land management categories, and biological reports associated with the report area. Users are reminded that this information is likely incomplete and may be inaccurate as surveys to document species are lacking in many areas of the state, species' range polygons often include regions of unsuitable habitat, methods of predicting the presence of species or communities are constantly improving, and information is constantly being added and updated in our databases. **Field verification by professional biologists of the absence or presence of species and biological communities in a report area will always be an important obligation of users of our data. Users are encouraged to only use this environmental summary report as a starting point for more in depth analyses and are encouraged to contact state, federal, and tribal resource management agencies for additional data or management guidelines relevant to your efforts. Please see the Appendix for introductory materials to each section of the report, additional information resources, and a list of relevant agency contacts.**

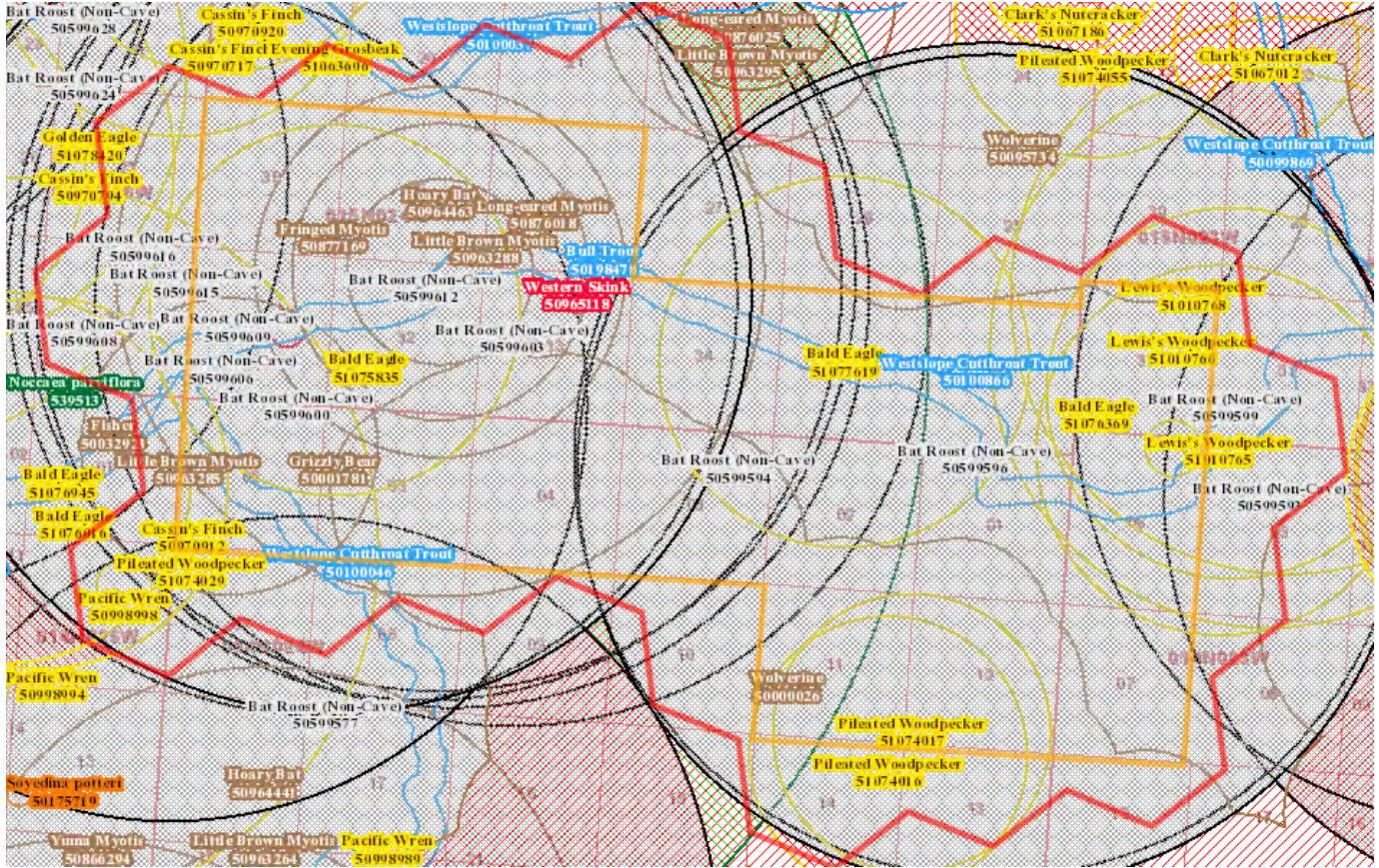
Legend			
Model Icons	Habitat Icons	Range Icons	Num Obs
N Suitable (native range)	Common	Y Native / Year-round	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional	S Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability		W Winter	
Low Suitability		M Migratory	
Suitable (introduced range)		N Non-native	
		H Historical	



Latitude	Longitude
46.96051	-114.53141
47.05262	-114.70933

Native Species

Summarized by: **23MT0003 - Alberton Geotech Biological Assessment (Custom Area of Interest)**
All Species (not filtered by Status)



Species Occurrences

Species	USFWS	Sec7	# SO	# Obs	Predicted Model	Range
F - Westslope Cutthroat Trout (<i>Oncorhynchus clarkii lewisii</i>) SOC			3	3+		Y
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native/Non-native Species - (depends on location or taxa) Global: G5T4 State: S2 USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) Species of Conservation Concern in Forests (CG, HLC) BLM: SENSITIVE FWP SWAP: SGCN2 Delineation Criteria Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Jul 25, 2022) Predicted Models: 55% Suitable (native range) (deductive)						
F - Bull Trout (<i>Salvelinus confluentus</i>) SOC		7	1	+		Y
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S2 USFWS: LT; CH BLM: THREATENED FWP SWAP: SGCN2 Delineation Criteria Stream reaches and standing water bodies where the species is believed to be present based on the professional judgement of a fisheries biologist, potentially supported by habitat assessment, direct capture, or confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards. (Last Updated: Jul 18, 2022) Predicted Models: 45% Suitable (native range) (deductive)						
B - Lewis's Woodpecker (<i>Melanerpes lewis</i>) SOC			4	6		S M
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S2B USFWS: MBTA; BCC10; BCC17 USFS: Species of Conservation Concern in Forests (HLC) BLM: SENSITIVE FWP SWAP: SGCN2 PIF: 2 Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 300 meters in order to encompass the likely foraging area used by breeding adults around the nest tree and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 29, 2022) Predicted Models: 23% Optimal (inductive), 39% Moderate (inductive), 23% Low (inductive)						
B - Bald Eagle (<i>Haliaeetus leucocephalus</i>) SSS			5	69+		Y
View in Field Guide View Predicted Models View Range Maps Special Status Species - Native Species Global: G5 State: S4 USFWS: BGEPA; MBTA USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) BLM: SENSITIVE PIF: 2 Delineation Criteria Confirmed nesting area buffered by a minimum distance of 2,000 meters in order to be conservative about encompassing the breeding territory and area commonly used for re-nesting. Only nesting observations with a locational uncertainty of 1,000 meters or less will be used to delineate a nesting area. (Last Updated: Jan 13, 2023) Predicted Models: 13% Optimal (inductive), 32% Moderate (inductive), 35% Low (inductive)						

<p>B - Cassin's Finch (<i>Haemorhous pallasi</i>) SOC</p> <p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA; BCC10 FWP SWAP: SGCN3 PIF: 3</p> <p>Delineation Criteria Observations with evidence of breeding activity buffered by a minimum distance of 300 meters in order to be conservative about encompassing the courtship and foraging distance from nesting areas and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 28, 2022)</p> <p>Predicted Models: 100% Moderate (inductive)</p>	<p>5 3</p> <p> </p>
<p>B - Evening Grosbeak (<i>Coccothraustes vespertinus</i>) SOC</p> <p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA; BCC10 FWP SWAP: SGCN3</p> <p>Delineation Criteria Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 1,000 meters in order to encompass the maximum foraging distance from nests reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jan 12, 2023)</p> <p>Predicted Models: 100% Moderate (inductive)</p>	<p>1</p> <p> </p>
<p>B - Pileated Woodpecker (<i>Dryocopus pileatus</i>) SOC</p> <p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA FWP SWAP: SGCN3 PIF: 2</p> <p>Delineation Criteria Observations with evidence of breeding activity buffered by a minimum distance of 1,500 meters in order to be conservative about encompassing home ranges and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jan 13, 2023)</p> <p>Predicted Models: 100% Moderate (inductive)</p>	<p>3 4</p> <p> </p>
<p>R - Western Skink (<i>Plestiodon skiltonianus</i>) SOC</p> <p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3 FWP SWAP: SGCN3, SGIN</p> <p>Delineation Criteria Confirmed breeding area based on the presence of a resident animal of any age. Point observation location is buffered by a minimum distance of 200 meters in order to encompass habitats supporting other individuals in adjacent territories. Otherwise the point observation is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 26, 2022)</p> <p>Predicted Models: 90% Moderate (inductive), 10% Low (inductive)</p>	<p>1 1</p> <p> </p>
<p>R - Northern Alligator Lizard (<i>Elgaria coerulea</i>) SOC</p> <p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3 FWP SWAP: SGCN3, SGIN</p> <p>Delineation Criteria Confirmed breeding area based on the presence of a resident animal of any age. Point observation location is buffered by a minimum distance of 200 meters in order to encompass habitats supporting other individuals and probable maximum home range sizes. Otherwise the point observation is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 26, 2022)</p> <p>Predicted Models: 52% Moderate (inductive), 48% Low (inductive)</p>	<p>1 1</p> <p> </p>
<p>M - Fringed Myotis (<i>Myotis thysanodes</i>) SOC</p> <p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G4 State: S3 BLM: SENSITIVE FWP SWAP: SGCN3</p> <p>Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a minimum distance of 2,000 meters in order to encompass the range of distances traveled from capture locations to roosts in the Black Hills of South Dakota and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 2,000 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Jul 21, 2022)</p> <p>Predicted Models: 39% Moderate (inductive), 48% Low (inductive)</p>	<p>1 3</p> <p> </p>
<p>B - Pacific Wren (<i>Troglodytes pacificus</i>) SOC</p> <p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA FWP SWAP: SGCN3 PIF: 2</p> <p>Delineation Criteria Observations with evidence of breeding activity buffered by a minimum distance of 300 meters in order to be conservative about encompassing home ranges and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 29, 2022)</p> <p>Predicted Models: 32% Moderate (inductive), 61% Low (inductive)</p>	<p>1 2</p> <p> </p>
<p>M - Long-eared Myotis (<i>Myotis evotis</i>) SOC</p> <p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G5 State: S3</p> <p>Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a minimum distance of 1,000 meters in order to encompass the average distances traveled from capture locations to roosts and between roosts in western Montana, Alberta, and Oregon and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 1,000 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Jul 20, 2022)</p> <p>Predicted Models: 29% Moderate (inductive), 68% Low (inductive)</p>	<p>2 2</p> <p> </p>
<p>M - Little Brown Myotis (<i>Myotis lucifugus</i>) SOC</p> <p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G3G4 State: S3 FWP SWAP: SGCN3</p> <p>Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles. Point observation location is buffered by a distance of 1,600 meters in order to encompass the greater than 1,500 meters foraging distance reported for the species in New Brunswick, Canada and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. When cave locations are involved, point observations are mapped in the center of a one-square mile hexagon to protect the exact location of the cave entrance as per the Federal Cave Resource Protection Act and associated regulations (U.S. Code Title 16 Chapter 63, Code of Federal Regulations Title 43 Subtitle A Part 37). The outer edges of the hexagon are then buffered by a distance of 1,600 meters and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. All of the one-square mile hexagons intersecting this buffered area are presented as the Species Occurrence record. (Last Updated: Dec 22, 2022)</p> <p>Predicted Models: 10% Moderate (inductive), 65% Low (inductive)</p>	<p>3 2</p> <p> </p>
<p>M - Hoary Bat (<i>Lasiurus cinereus</i>) SOC</p> <p>View in Field Guide View Predicted Models View Range Maps</p> <p>Species of Concern - Native Species Global: G3G4 State: S3B BLM: SENSITIVE FWP SWAP: SGCN3</p> <p>Delineation Criteria Confirmed area of occupancy based on the documented presence (mistnet captures, definitively identified acoustic recordings, and definitively identified roosting individuals) of adults or juveniles during the active season. Point observation location is buffered by a minimum distance of 3,500 meters in order to be conservative about encompassing the maximum reported foraging distance for the congeneric <i>Lasiurus borealis</i> and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Dec 23, 2022)</p> <p>Predicted Models: 6% Moderate (inductive), 81% Low (inductive)</p>	<p>1 1</p> <p> </p>
<p>B - Golden Eagle (<i>Aquila chrysaetos</i>) SOC</p>	<p>1 5</p> <p> </p>

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G5** State: **S3** USFWS: **BGEPA; MBTA** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed nesting area buffered by a minimum distance of 3,000 meters in order to be conservative about encompassing the entire breeding territory and area commonly used for re-nesting and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Jan 17, 2023)

Predicted Models: **M** 6% Moderate (inductive), **L** 68% Low (inductive)

M - Grizzly Bear (*Ursus arctos*) **SOC** 7 1

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G4** State: **S2S3** USFWS: **LT** BLM: **THREATENED** FWP SWAP: **SGCN2-3**

Delineation Criteria Species Occurrence polygons represent areas delineated by the U.S. Fish and Wildlife Service (USFWS) that encompass both home ranges and potential transitory movements based on verified sightings. Within these areas, the USFWS wants project proponents to consider whether the species may be present when evaluating the potential impacts of a project and to work with the USFWS to develop and implement best management practices to minimize or eliminate project effects on the species. (Last Updated: Dec 21, 2022)

Predicted Models: **M** 3% Moderate (inductive), **L** 97% Low (inductive)

M - Fisher (*Pekania pennanti*) **SOC** 1 +

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G5** State: **S3** USFS: **Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed area of occupancy based on the documented presence of adults or juveniles within tracking regions containing core habitat for the species. Outer boundaries of tracking regions are defined by areas of forest cover on individual mountain ranges or clusters of adjacent mountain ranges with continuous forest cover. (Last Updated: Dec 21, 2022)

Predicted Models: **M** 3% Moderate (inductive), **L** 90% Low (inductive)

M - Wolverine (*Gulo gulo*) **SOC** 7 2 +

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G4** State: **S3** USFS: **Sensitive - Known in Forests (BD, BRT, KOOT, LOLO)** BLM: **SENSITIVE** FWP SWAP: **SGCN3**

Delineation Criteria Confirmed area of occupancy supported by recent (post-1980), nearby (within 10 kilometers) observations of adults or juveniles. Tracking regions were defined by areas of primary habitat and adjacent female dispersal habitat as modeled by Inman et al. (2013). These regions were buffered by 1 kilometer in order to link smaller areas and account for potential inaccuracies in independent variables used in the model. (Last Updated: Dec 21, 2022)

Predicted Models: **L** 94% Low (inductive)

V - Noccaea parviflora (*Small-flowered Pennycress*) **SOC** 1 Not Assessed

[View in Field Guide](#)

Species of Concern - Native Species Global: **G3** State: **S3** Plant Threat Score: **Unknown** CCVI: **Highly Vulnerable**

Delineation Criteria Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation. (Last Updated: Sep 13, 2021)

O - Bat Roost (Non-Cave) (*Bat Roost (Non-Cave)*) **IAH** 14 Not Assessed

[View in Field Guide](#)

Important Animal Habitat - Native Species Global: **GNR** State: **SNR**

Delineation Criteria Confirmed area of occupancy based on the documented presence of adults or juveniles of any bat species at non-cave natural roost sites (e.g. rock outcrops, trees), below ground human created roost sites (e.g. mines), and above ground human created roost sites (e.g., bridges, buildings). Point observation locations are buffered by a distance of 4,500 meters in order to encompass the 95% confidence interval for nightly foraging distance reported for Townsend's Big-eared Bat (a resident Montana bat Species of Concern) and otherwise by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters. (Last Updated: Oct 22, 2019)

Legend			
Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Native / Year-round	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional	Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability		Winter	
Low Suitability		Migratory	
Suitable (introduced range)		Non-native	
		Historical	



Latitude 46.96051
Longitude -114.53141
47.05262 -114.70933

Native Species

Summarized by: **23MT0003 - Alberton Geotech Biological Assessment (Custom Area of Interest)**
All Species (not filtered by Status)

Other Observed Species

Species	USFWS Sec7	# Obs	Predicted Model	Range
B - Black-backed Woodpecker (<i>Picoides arcticus</i>) SOC		1		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 1 Predicted Models: 97% Moderate (inductive), 3% Low (inductive)				
B - Clark's Nutcracker (<i>Nucifraga columbiana</i>) SOC		10		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA USFS: Species of Conservation Concern in Forests (FLAT) FWP SWAP: SGCN3 PIF: 3 Predicted Models: 90% Moderate (inductive), 10% Low (inductive)				
B - Rufous Hummingbird (<i>Selasphorus rufus</i>) PSOC		3		
View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G4 State: S4B USFWS: MBTA; BCC10 PIF: 3 Predicted Models: 84% Moderate (inductive), 16% Low (inductive)				
M - Canada Lynx (<i>Lynx canadensis</i>) SOC	7	+		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3 USFWS: LT; CH BLM: THREATENED FWP SWAP: SGCN3 Predicted Models: 35% Moderate (inductive), 65% Low (inductive)				
B - Brown Creeper (<i>Certhia americana</i>) SOC		2		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA FWP SWAP: SGCN3 PIF: 1 Predicted Models: 35% Moderate (inductive), 55% Low (inductive)				
M - Silver-haired Bat (<i>Lasiurus noctivagus</i>) PSOC		5		
View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G3G4 State: S4 Predicted Models: 13% Moderate (inductive), 74% Low (inductive)				
B - Hooded Merganser (<i>Lophodytes cucullatus</i>) PSOC		3		
View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G5 State: S4 USFWS: MBTA FWP SWAP: SGIN PIF: 2 Predicted Models: 10% Moderate (inductive), 48% Low (inductive)				
B - Common Poorwill (<i>Phalaenoptilus nuttallii</i>) PSOC		1		
View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G5 State: S4B USFWS: MBTA FWP SWAP: SGIN PIF: 3 Predicted Models: 3% Moderate (inductive), 32% Low (inductive)				
B - Great Blue Heron (<i>Ardea herodias</i>) SOC		1		
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA FWP SWAP: SGCN3 Predicted Models: 45% Low (inductive)				
B - Ferruginous Hawk (<i>Buteo regalis</i>) SOC		+	Not Assessed	
View in Field Guide View Range Maps Species of Concern - Native Species Global: G4 State: S3B USFWS: MBTA; BCC17 BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2				

Legend			
Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Native / Year-round	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional	Summer	+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability		Winter	
Low Suitability		Migratory	
Suitable (introduced range)		Non-native	
		Historical	



Latitude 46.96051
Longitude -114.53141
47.05262 -114.70933

Native Species

Summarized by: **23MT0003 - Alberton Geotech Biological Assessment (Custom Area of Interest)**
All Species (not filtered by Status)

Other Potential Species

	USFWS Sec7	Predicted Model	Range
V - Carex scoparia (<i>Pointed Broom Sedge</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S1S2 Plant Threat Score: No Known Threats Predicted Models: 19% Optimal (inductive), 81% Moderate (inductive)			
B - Veery (<i>Catharus fuscescens</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 2 Predicted Models: 10% Optimal (inductive), 23% Moderate (inductive), 61% Low (inductive)			
M - Yuma Myotis (<i>Myotis yumanensis</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3 FWP SWAP: SGIN Predicted Models: 6% Optimal (inductive), 35% Moderate (inductive), 35% Low (inductive)			
V - Impatiens aurella (<i>Pale-yellow Jewel-weed</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3 Plant Threat Score: No Known Threats Predicted Models: 3% Optimal (inductive), 52% Moderate (inductive), 13% Low (inductive)			
V - Allium acuminatum (<i>Tapertip Onion</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S2S3 USFS: Sensitive - Known in Forests (BD, BRT, LOLO) Plant Threat Score: High - Medium CCVI: Moderately Vulnerable Predicted Models: 3% Optimal (inductive), 32% Moderate (inductive), 39% Low (inductive)			
B - Western Screech-Owl (<i>Megascops kennicottii</i>) PSOC			
View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G4G5 State: S3S4 USFWS: MBTA FWP SWAP: SGIN PIF: 3 Predicted Models: 77% Moderate (inductive), 23% Low (inductive)			
B - Flammulated Owl (<i>Psiloscops flammeolus</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3B USFWS: MBTA; BCC10 USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) Species of Conservation Concern in Forests (FLAT, HLC) BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 1 Predicted Models: 71% Moderate (inductive), 26% Low (inductive)			
I - Bombus suckleyi (<i>Suckley Cuckoo Bumble Bee</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G2G3 State: S1 Predicted Models: 71% Moderate (inductive), 19% Low (inductive)			
M - Townsend's Big-eared Bat (<i>Corynorhinus townsendii</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G4 State: S3 USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) BLM: SENSITIVE FWP SWAP: SGCN3 Predicted Models: 68% Moderate (inductive), 29% Low (inductive)			
B - Varied Thrush (<i>Ixoreus naevius</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3B USFWS: MBTA FWP SWAP: SGCN3 PIF: 3 Predicted Models: 61% Moderate (inductive), 39% Low (inductive)			
V - Dichanthelium acuminatum (<i>Panic Grass</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S2S3 Plant Threat Score: Unknown Predicted Models: 61% Moderate (inductive), 32% Low (inductive)			
V - Madia minima (<i>Small-headed Tarweed</i>) PSOC			
View in Field Guide View Predicted Models View Range Maps Potential Species of Concern - Native Species Global: G4 State: S3S4 Predicted Models: 58% Moderate (inductive), 26% Low (inductive)			
V - Eleocharis rostellata (<i>Beaked Spikerush</i>) SOC			
View in Field Guide View Predicted Models View Range Maps Species of Concern - Native Species Global: G5 State: S3 USFS: Species of Conservation Concern in Forests (CG, FLAT, HLC) Plant Threat Score: Unknown CCVI: Less Vulnerable Predicted Models: 52% Moderate (inductive), 19% Low (inductive)			
I - Oreohelix haydeni (<i>Lyrate Mountainsnail</i>) SOC			

View in Field Guide	View Predicted Models	View Range Maps	USFS: Sensitive - Known in Forests (BD, LOLO) Sensitive - Suspected in Forests (BRT, KOOT)
Species of Concern - Native Species Global: G4 State: S2S3 Species of Conservation Concern in Forests (FLAT, HLC) Plant Threat Score: Low CCVI: Moderately Vulnerable			
Predicted Models: 10% Moderate (inductive), 77% Low (inductive)			
B - Meesia triquetra (<i>Meesia Moss</i>) SOC			
View in Field Guide	View Predicted Models	View Range Maps	USFS: Sensitive - Known in Forests (BRT, KOOT) Sensitive - Suspected in Forests (LOLO)
Species of Concern - Native Species Global: G5 State: S2 Species of Conservation Concern in Forests (CG, FLAT)			
Predicted Models: 10% Moderate (inductive), 48% Low (inductive)			
V - Botrychium simplex (<i>Least Moonwort</i>) SOC			
View in Field Guide	View Predicted Models	View Range Maps	
Species of Concern - Native Species Global: G5 State: S2 CCVI: Less Vulnerable			
Predicted Models: 10% Moderate (inductive), 32% Low (inductive)			
V - Calamagrostis tweedyi (<i>Cascade reedgrass</i>) SOC			
View in Field Guide	View Predicted Models	View Range Maps	
Species of Concern - Native Species Global: G3 State: S3 Plant Threat Score: No Known Threats CCVI: Less Vulnerable			
Predicted Models: 10% Moderate (inductive), 29% Low (inductive)			
V - Dichanthelium oligosanthes var. scribnerianum (<i>Scribner's Panic Grass</i>) SOC			
View in Field Guide	View Predicted Models	View Range Maps	
Species of Concern - Native Species Global: G5T5 State: S1S2 Plant Threat Score: Low			
Predicted Models: 6% Moderate (inductive), 71% Low (inductive)			
V - Cypripedium fasciculatum (<i>Clustered Lady's-slipper</i>) SOC			
View in Field Guide	View Predicted Models	View Range Maps	USFS: Sensitive - Known in Forests (KOOT, LOLO)
Species of Concern - Native Species Global: G4 State: S3 Species of Conservation Concern in Forests (FLAT) Plant Threat Score: Medium CCVI: Moderately Vulnerable			
Predicted Models: 6% Moderate (inductive), 55% Low (inductive)			
V - Ligusticum verticillatum (<i>Idaho Lovage</i>) SOC			
View in Field Guide	View Predicted Models	View Range Maps	
Species of Concern - Native Species Global: G4G5 State: S3 Plant Threat Score: No Known Threats			
Predicted Models: 6% Moderate (inductive), 19% Low (inductive)			
B - Harlequin Duck (<i>Histrionicus histrionicus</i>) SOC			
View in Field Guide	View Predicted Models	View Range Maps	
Species of Concern - Native Species Global: G4 State: S2B USFWS: MBTA USFS: Sensitive - Known in Forests (BD, KOOT, LOLO) FWP SWAP: SGCN2 PIF: 1			
Predicted Models: 3% Moderate (inductive), 90% Low (inductive)			
V - Cypripedium parviflorum (<i>Small Yellow Lady's-slipper</i>) PSOC			
View in Field Guide	View Predicted Models	View Range Maps	USFS: Sensitive - Known in Forests (KOOT, LOLO) Sensitive - Suspected in Forests (BRT)
Potential Species of Concern - Native Species Global: G5 State: S3S4 Species of Conservation Concern in Forests (CG, HLC)			
Predicted Models: 3% Moderate (inductive), 87% Low (inductive)			
B - Great Gray Owl (<i>Strix nebulosa</i>) SOC			
View in Field Guide	View Predicted Models	View Range Maps	
Species of Concern - Native Species Global: G5 State: S3 USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3, SGIN PIF: 3			
Predicted Models: 3% Moderate (inductive), 55% Low (inductive)			
V - Satureja douglasii (<i>Yerba Buena</i>) SOC			
View in Field Guide	View Predicted Models	View Range Maps	
Species of Concern - Native Species Global: G5 State: S3 Plant Threat Score: No Known Threats			
Predicted Models: 3% Moderate (inductive), 52% Low (inductive)			
M - Preble's Shrew (<i>Sorex preblei</i>) SOC			
View in Field Guide	View Predicted Models	View Range Maps	
Species of Concern - Native Species Global: G4 State: S3 FWP SWAP: SGCN3			
Predicted Models: 3% Moderate (inductive), 39% Low (inductive)			
V - Stipa lettermanii (<i>Letterman's Needlegrass</i>) SOC			
View in Field Guide	View Predicted Models	View Range Maps	
Species of Concern - Native Species Global: G5 State: S1S3 USFS: Species of Conservation Concern in Forests (HLC) Plant Threat Score: No Known Threats			
Predicted Models: 3% Moderate (inductive), 32% Low (inductive)			
V - Penstemon flavescens (<i>Yellow Beardtongue</i>) SOC			
View in Field Guide	View Predicted Models	View Range Maps	
Species of Concern - Native Species Global: G3 State: S3 Plant Threat Score: No Known Threats CCVI: Highly Vulnerable			
Predicted Models: 3% Moderate (inductive), 29% Low (inductive)			
B - Trumpeter Swan (<i>Cygnus buccinator</i>) SOC			
View in Field Guide	View Predicted Models	View Range Maps	
Species of Concern - Native Species Global: G4 State: S3 USFWS: MBTA USFS: Sensitive - Known in Forests (BD) BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 1			
Predicted Models: 3% Moderate (inductive), 23% Low (inductive)			
V - Botrychium paradoxum (<i>Peculiar Moonwort</i>) SOC			

View in Field Guide	View Predicted Models	View Range Maps	USFS: Sensitive - Known in Forests (BD, KOOT) Sensitive - Suspected in Forests (LOLO)	
Species of Concern - Native Species Global: G3G4 State: S3 Species of Conservation Concern in Forests (CG, FLAT, HLC) BLM: SENSITIVE				
CCVI: Moderately Vulnerable				
Predicted Models: 3% Moderate (inductive), 10% Low (inductive)				
M - North American Porcupine (<i>Erethizon dorsatum</i>) PSOC				
View in Field Guide	View Predicted Models	View Range Maps		
Potential Species of Concern - Native Species Global: G5 State: S3S4 FWP SWAP: SGIN				
Predicted Models: 74% Low (inductive)				
B - Grimmia brittoniae (<i>Britton's Dry Rock Moss</i>) SOC				
View in Field Guide	View Predicted Models	View Range Maps	USFS: Sensitive - Known in Forests (KOOT, LOLO)	
Species of Concern - Native Species Global: G2 State: S2 Species of Conservation Concern in Forests (FLAT)				
Predicted Models: 65% Low (inductive)				
B - Black Swift (<i>Cypseloides niger</i>) SOC				
View in Field Guide	View Predicted Models	View Range Maps		
Species of Concern - Native Species Global: G4 State: S1B USFWS: MBTA; BCC10 USFS: Species of Conservation Concern in Forests (FLAT)				
FWP SWAP: SGCN1, SGIN PIF: 2				
Predicted Models: 65% Low (inductive)				
A - Western Toad (<i>Anaxyrus boreas</i>) SOC				
View in Field Guide	View Predicted Models	View Range Maps		
Species of Concern - Native Species Global: G4 State: S2 USFS: Sensitive - Known in Forests (BD, BRT, KOOT, LOLO) BLM: SENSITIVE FWP SWAP: SGCN2				
Predicted Models: 61% Low (inductive)				
V - Ageratina occidentalis (<i>Western Joeepy-weed</i>) SOC				
View in Field Guide	View Predicted Models	View Range Maps	USFS: Sensitive - Known in Forests (BRT)	
Species of Concern - Native Species Global: G4 State: S2 Sensitive - Suspected in Forests (BD, KOOT, LOLO) Plant Threat Score: Unknown CCVI: Less Vulnerable				
Predicted Models: 61% Low (inductive)				
V - Drosera rotundifolia (<i>Roundleaf Sundew</i>) PSOC				
View in Field Guide	View Predicted Models	View Range Maps		
Potential Species of Concern - Native Species Global: G5 State: S3S4 Plant Threat Score: Unknown				
Predicted Models: 55% Low (inductive)				
B - Tennessee Warbler (<i>Leiothlypis peregrina</i>) PSOC				
View in Field Guide	View Predicted Models	View Range Maps		
Potential Species of Concern - Native Species Global: G5 State: S3S4B USFWS: MBTA				
Predicted Models: 55% Low (inductive)				
I - Rhyacophila betteni (<i>A Caddisfly</i>) SSS				
View in Field Guide	View Predicted Models	View Range Maps		
Special Status Species - Native Species Global: G2G4 State: S3S4				
Predicted Models: 52% Low (inductive)				
V - Mimulus ampliatus (<i>Stalk-leaved Monkeyflower</i>) SOC				
View in Field Guide	View Predicted Models	View Range Maps		
Species of Concern - Native Species Global: G3 State: S3 USFS: Sensitive - Known in Forests (KOOT) Plant Threat Score: No Known Threats				
CCVI: Highly Vulnerable				
Predicted Models: 52% Low (inductive)				
B - American Bittern (<i>Botaurus lentiginosus</i>) SOC				
View in Field Guide	View Predicted Models	View Range Maps		
Species of Concern - Native Species Global: G5 State: S3B USFWS: MBTA BLM: SENSITIVE FWP SWAP: SGCN3 PIF: 3				
Predicted Models: 52% Low (inductive)				
V - Mimulus suksdorfii (<i>Suksdorf Monkeyflower</i>) PSOC				
View in Field Guide	View Predicted Models	View Range Maps		
Potential Species of Concern - Native Species Global: G4 State: S3S4				
Predicted Models: 48% Low (inductive)				
V - Botrychium ascendens (<i>Upward-lobed Moonwort</i>) SOC				
View in Field Guide	View Predicted Models	View Range Maps		
Species of Concern - Native Species Global: G4 State: S3 USFS: Sensitive - Known in Forests (KOOT) CCVI: Less Vulnerable				
Predicted Models: 45% Low (inductive)				
V - Botrychium lanceolatum (<i>Lanceleaf Moonwort</i>) SOC				
View in Field Guide	View Predicted Models	View Range Maps		
Species of Concern - Native Species Global: G5 State: S3 CCVI: Less Vulnerable				
Predicted Models: 45% Low (inductive)				
V - Botrychium crenulatum (<i>Wavy Moonwort</i>) SOC				
View in Field Guide	View Predicted Models	View Range Maps	USFS: Sensitive - Known in Forests (BD, KOOT, LOLO)	
Species of Concern - Native Species Global: G4 State: S3 Species of Conservation Concern in Forests (HLC) CCVI: Less Vulnerable				
Predicted Models: 39% Low (inductive)				
B - American White Pelican (<i>Pelecanus erythrorhynchos</i>) SOC				
View in Field Guide	View Predicted Models	View Range Maps		
Species of Concern - Native Species Global: G4 State: S3B USFWS: MBTA FWP SWAP: SGCN3 PIF: 3				
Predicted Models: 29% Low (inductive)				
V - Clarkia rhomboidea (<i>Diamond Clarkia</i>) SOC				

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G5** State: **S3** USFS: **Sensitive - Known in Forests (BRT, KOOT, LOLO)** Plant Threat Score: **Low** CCVI: **Less Vulnerable**

Predicted Models: 26% Low (inductive)

V - Dryopteris cristata (*Crested Shieldfern*) **SOC**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

USFS: **Sensitive - Known in Forests (BRT, KOOT, LOLO)**

Species of Concern - Native Species Global: **G5** State: **S3** **Species of Conservation Concern in Forests (FLAT)** Plant Threat Score: **Low**

CCVI: **Moderately Vulnerable**

Predicted Models: 26% Low (inductive)

B - Ovenbird (*Seiurus aurocapilla*) **PSOC**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Potential Species of Concern - Native Species Global: **G5** State: **S4B** USFWS: **MBTA** PIF: **3**

Predicted Models: 26% Low (inductive)

B - Boreal Owl (*Aegolius funereus*) **PSOC**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Potential Species of Concern - Native Species Global: **G5** State: **S3S4** USFWS: **MBTA** FWP SWAP: **SGIN** PIF: **3**

Predicted Models: 23% Low (inductive)

V - Isoetes echinospora (*Spiny-spore Quillwort*) **SOC**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

Species of Concern - Native Species Global: **G5** State: **S3** Plant Threat Score: **No Known Threats** CCVI: **Less Vulnerable**

Predicted Models: 23% Low (inductive)

V - Trichophorum cespitosum (*Tufted Club-rush*) **SOC**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)

USFS: **Sensitive - Known in Forests (BD, KOOT)**

Species of Concern - Native Species Global: **G5** State: **S2** **Species of Conservation Concern in Forests (FLAT)** Plant Threat Score: **No Known Threats**

CCVI: **Moderately Vulnerable**

Predicted Models: 23% Low (inductive)

Structured Surveys

Summarized by: **23MT0003 - Alberton Geotech Biological Assessment (Custom Area of Interest)**

The Montana Natural Heritage Program (MTNHP) records information on the locations where more than 80 different types of well-defined repeatable survey protocols capable of detecting an animal species or suite of animal species have been conducted by state, federal, tribal, university, or private consulting biologists. Examples of structured survey protocols tracked by MTNHP include: visual encounter and dip net surveys for pond breeding amphibians, point counts for birds, call playback surveys for selected bird species, visual surveys of migrating raptors, kick net stream reach surveys for macroinvertebrates, visual encounter cover object surveys for terrestrial mollusks, bat acoustic or mist net surveys, pitfall and/or snap trap surveys for small terrestrial mammals, track or camera trap surveys for large mammals, and trap surveys for turtles. Whenever possible, photographs of survey locations are stored in MTNHP databases.

MTNHP does not typically manage information on structured surveys for plants; surveys for invasive species may be a future exception.

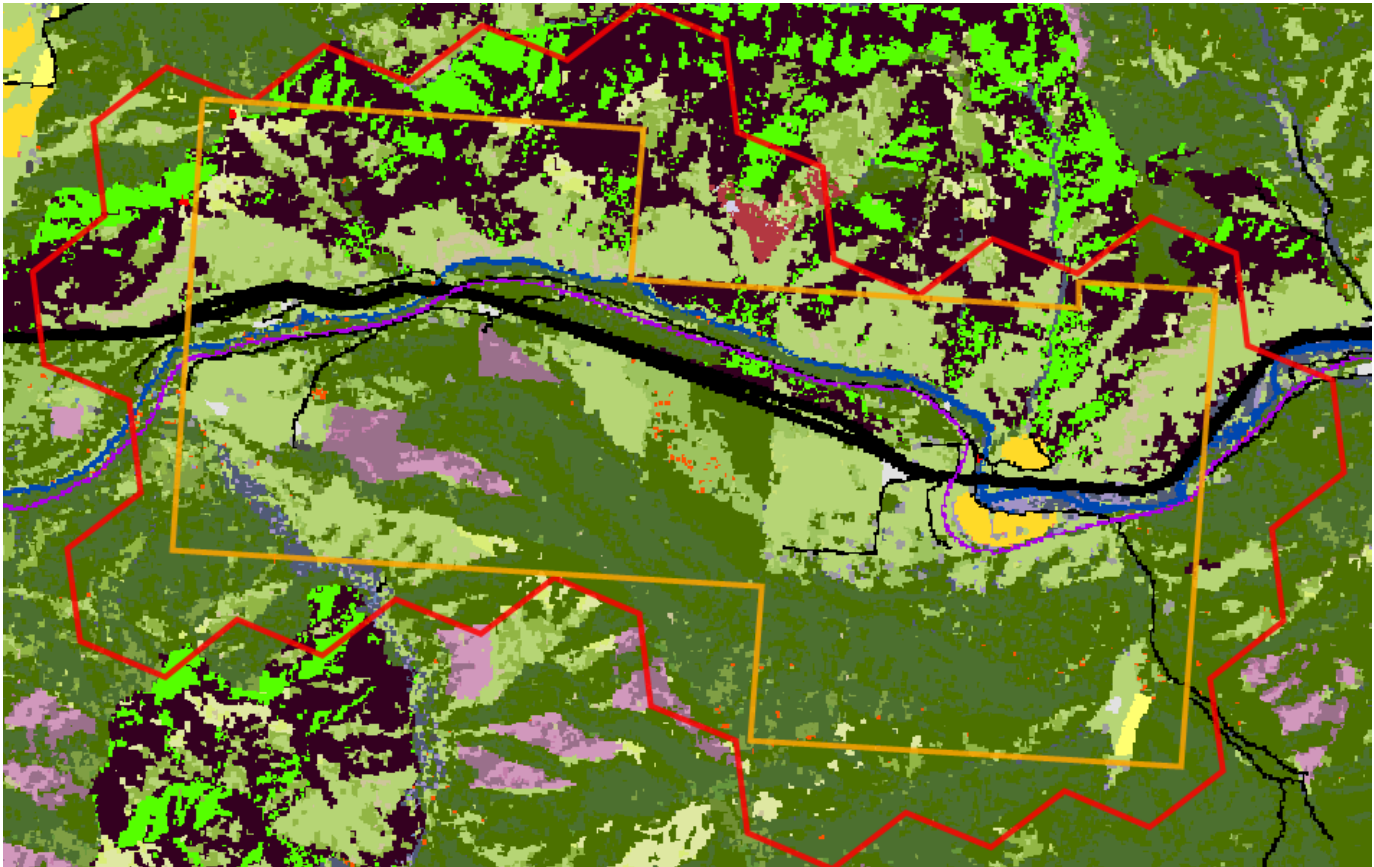
Within the report area you have requested, structured surveys are summarized by the number of each type of structured survey protocol that has been conducted, the number of species detections/observations resulting from these surveys, and the most recent year a survey has been conducted.

B-Bald Eagle Nest (<i>Bald Eagle Nest Survey</i>)	Survey Count: 28	Obs Count: 27	Recent Survey: 2018
B-Goshawk Call Playback (<i>Northern Goshawk Call Playback Survey</i>)	Survey Count: 32	Obs Count:	Recent Survey: 2006
B-Point Count (<i>Bird Point Count</i>)	Survey Count: 3	Obs Count: 59	Recent Survey: 2007
B-Raptor nest (<i>Raptor Nest Survey</i>)	Survey Count: 24	Obs Count: 23	Recent Survey: 2018
E-Eastern Heath Snail (<i>Eastern Heath Snail Survey</i>)	Survey Count: 3	Obs Count:	Recent Survey: 2012
E-Invasive Mussel Plankton Tow (<i>Plankton tows for veligers of Invasive Mussels</i>)	Survey Count: 4	Obs Count:	Recent Survey: 2020
E-Kicknet (<i>Kicknet Collection Survey for Invasive Mussels and Snails</i>)	Survey Count: 4	Obs Count: 1	Recent Survey: 2021
E-Noxious Weed, Road-based (<i>Noxious Weed Road-based Visual Surveys</i>)	Survey Count: 20	Obs Count: 57	Recent Survey: 2003
E-Noxious Weed, Visual (<i>Noxious Weed Visual Surveys</i>)	Survey Count: 16	Obs Count: 229	Recent Survey: 2009
E-Visual Aquatic Invasives (<i>Visual Encounter Surveys for Aquatic Invasives on Shorelines or Underwater</i>)	Survey Count: 12	Obs Count:	Recent Survey: 2021
F-Fish Electrofishing (<i>Fish Electrofishing Surveys</i>)	Survey Count: 18	Obs Count: 5	Recent Survey: 2011
M-Bat Acoustic (<i>Bat Acoustic Survey</i>)	Survey Count: 7	Obs Count: 13	Recent Survey: 2012
M-Bat Mistnet (<i>Bat Mistnet Survey</i>)	Survey Count: 1	Obs Count: 3	Recent Survey: 2011
M-Bat Roost (Active Season) (<i>Bat Roost (Active Season) Survey</i>)	Survey Count: 13	Obs Count: 9	Recent Survey: 2014
M-SMammal Snap/Sherman/Pitfall (<i>Small Mammal Snap, Sherman, and Pitfall Trap Survey</i>)	Survey Count: 1	Obs Count: 2	Recent Survey: 2010



Land Cover

Summarized by: **23MT0003 - Alberton Geotech Biological Assessment (Custom Area of Interest)**



22% (4,353 Acres)

Forest and Woodland Systems

Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest

This ecological system, composed of highly variable montane conifer forests, is found throughout Montana. It is associated with a submesic climate regime with annual precipitation ranging from 250 to 1,000 millimeters (10-39 inches), with most precipitation occurring during winter, and April through June. Winter snowpacks typically melt off in early spring at lower elevations. Elevations range from valley bottoms to 1,676 meters (5,500 feet) in northwestern Montana and up to 2,286 meters (7,500 feet) on warm aspects in southern Montana. In northwestern and west-central Montana, this ecosystem forms a forest belt on warm, dry to slightly moist sites. It generally occurs on gravelly soils with good aeration and drainage and a neutral to slightly acidic pH. In the western part of the state, it is seen mostly on well drained mountain slopes and valleys from lower treeline to up to 1,676 meters (5,500 feet). Immediately east of the Continental Divide, in north-central Montana, it occurs at montane elevations. Douglas-fir (*Pseudotsuga menziesii*) is the dominant conifer both as a seral and climax species. West of the Continental Divide, occurrences can be dominated by any combination of Douglas-fir and long-lived, seral western larch (*Larix occidentalis*), grand fir (*Abies grandis*), ponderosa pine (*Pinus ponderosa*) and lodgepole pine (*Pinus contorta*). Aspen (*Populus tremuloides*) and western white pine (*Pinus monticola*) have a minor status, with western white pine only in extreme western Montana. East of the Continental Divide, larch is absent and lodgepole pine is the co-dominant. Engelmann spruce (*Picea engelmannii*), white spruce, (*Picea glauca*) or their hybrid, become increasingly common towards the eastern edge of the Douglas-fir forest belt.



19% (3,802 Acres)

Grassland Systems

Montane Grassland

Rocky Mountain Lower Montane, Foothill, and Valley Grassland

This grassland system of the northern Rocky Mountains is found at lower montane to foothill elevations in mountains and valleys throughout Montana. These grasslands are floristically similar to Big Sagebrush Steppe but are defined by shorter summers, colder winters, and young soils derived from recent glacial and alluvial material. They are found at elevations from 548 - 1,650 meters (1,800-5,413 feet). In the lower montane zone, they range from small meadows to large open parks surrounded by conifers; below the lower treeline, they occur as extensive foothill and valley grasslands. Soils are relatively deep, fine-textured, often with coarse fragments, and non-saline. Microphytic crust may be present in high-quality occurrences. This system is typified by cool-season perennial bunch grasses and forbs (>25%) cover, with a sparse shrub cover (<10%). Rough fescue (*Festuca campestris*) is dominant in the northwestern portion of the state and Idaho fescue (*Festuca idahoensis*) is dominant or co-dominant throughout the range of the system. Bluebunch wheatgrass (*Pseudoroegneria spicata*) occurs as a co-dominant throughout the range as well, especially on xeric sites. Western wheatgrass (*Pascopyrum smithii*) is consistently present, often with appreciable coverage (>10%) in lower elevation occurrences in western Montana and virtually always present, with relatively high coverages (>25%), on the edge of the Northwestern Great Plains region. Species diversity ranges from a high of more than 50 per 400 square meter plot on mesic sites to 15 (or fewer) on xeric and disturbed sites. Most occurrences have at least 25 vascular species present. Farmland conversion, noxious species invasion, fire suppression, heavy grazing and oil and gas development are major threats to this system.



Forest and Woodland Systems
Conifer-dominated forest and woodland (mesic-wet)

Rocky Mountain Mesic Montane Mixed Conifer Forest

19% (3,673 Acres)

These forests are generally dominated by western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja plicata*), and grand fir (*Abies grandis*). They are found in areas influenced by incursions of mild, wet, Pacific maritime air masses west of the Continental Divide in Montana. Occurrences are found on all slopes and aspects but grow best on sites with high soil moisture, such as toeslopes and bottomlands. At the periphery of its distribution, this system is confined to moist canyons and cooler, moister aspects. Generally, these are moist, non-flooded or upland forest sites that are not saturated yearlong. In northwestern Montana, western hemlock and western red cedar forests occur on bottomland and northerly exposures between 609-1,585 meters (2,000-5,200 feet) on sites with an average annual precipitation of 635 millimeters (25 inches). These forests are common in extreme northwestern Montana, and extend eastward to the Continental Divide in the Lake McDonald drainage of Glacier National Park. Isolated stands of western hemlock occur in the Swan Valley, but are found most commonly in the Libby and Thompson Falls vicinities, west to the Idaho border. Western red cedar occurs extensively in the Mission Mountain ranges south to Missoula, and on lower flanks of the Swan Range north of Lion Creek. It is confined to the riparian zone of major streams on the east face of the Bitterroot Mountain Range. Grand fir, being less moisture dependent, occurs in more southerly and easterly sites than western red cedar and western hemlock. This system is similar to Rocky Mountain Dry-Mesic Mixed Montane Conifer Forest, which can be described as a seral phase of this system on appropriate sites west of the Continental Divide.

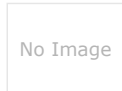


Recently Disturbed or Modified
Recently burned

Recently burned forest

14% (2,868 Acres)

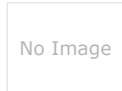
Land cover is apparently modified by recent fires which have burned forest and woodland vegetation. Vegetation is a mixture of herbaceous, shrub, and tree species.



Recently Disturbed or Modified
Recently burned

Post-Fire Recovery

4% (873 Acres)



Shrubland, Steppe and Savanna Systems
Deciduous Shrubland

Rocky Mountain Montane-Foothill Deciduous Shrubland

3% (667 Acres)

This system is found in the lower montane and foothill regions of western Montana, and north and east into the northern Rocky Mountains. These shrublands typically occur below treeline, within the matrix of surrounding low-elevation grasslands and sagebrush shrublands. They are usually found on steep slopes of canyons, on toeslopes and occasionally on valley bottom lands. These communities can occur on all aspects. In northwestern and west-central Montana, this system forms within Douglas-fir (*Pseudotsuga menziesii*) and ponderosa pine (*Pinus ponderosa*) forests and adjacent to fescue grasslands and big sagebrush (*Artemisia tridentata*) shrublands. In northwestern Montana, these shrublands commonly occur within the upper montane grasslands and forests along the Rocky Mountain Front. Immediately east of the Continental Divide, this system is found within montane grasslands and steep canyon slopes. Most sites have shallow soils that are either loess deposits or volcanic clays. Common ninebark (*Physocarpus malvaceus*), bittercherry (*Prunus emarginata*), common chokecherry (*Prunus virginiana*), rose (*Rosa* spp.), smooth sumac (*Rhus glabra*), Rocky Mountain maple (*Acer glabrum*), serviceberry (*Amelanchier alnifolia*), and oceanspray (*Holodiscus discolor*) are the most common dominant shrubs.

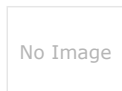


Forest and Woodland Systems
Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Ponderosa Pine Woodland and Savanna

3% (626 Acres)

This system occurs on warm, dry, exposed sites in the foothills of the Rocky Mountains in west-central and central Montana, at the ecotone between grasslands or shrublands and more mesic coniferous forests. Elevations range from 1,066 to 1,676 meters (3,500-5,500 feet), with higher elevation examples mostly confined to central Montana. Occurrences are found on all slopes and aspects; however, moderately steep to very steep slopes or ridgetops are most common. True savanna types are infrequent; the system is more characteristically an open forest with a grassy understory. In the western part of the state, this system is seen mostly on dry slopes in the rainshadow of the Bitterroot Mountains. East of the Continental Divide, it is most widespread around Helena and Lewistown, although it occurs throughout mountain ranges as far east as the Little Rocky and Bearpaw Mountains. Ponderosa pine (*Pinus ponderosa*) is the dominant conifer. Douglas-fir (*Pseudotsuga menziesii*) and western larch (*Larix occidentalis*) may be present in the tree canopy in the more western areas, but are usually absent. In central Montana, limber pine (*Pinus flexilis*) and horizontal juniper (*Juniperus horizontalis*) are frequently components. Although the understory of ponderosa pine forests is often shrubby in other states, in Montana, habitats are mostly dominated by graminoids, although bitterbrush (*Purshia tridentata*), white snowberry (*Symphoricarpos albus*), and skunkbrush (*Rhus trilobata*) occur in forests on benchlands and rocky slopes in the central portion of the state. Understory vegetation is more typically grasses and forbs that resprout following low to moderate intensity surface fires. Prolonged drought, beetle kill and exotic invasion are rapidly changing the dynamics of this system.



Human Land Use
Developed

Interstate

3% (571 Acres)

National Highway System (NHS) limited access highways and their shoulders and rights of way.

Additional Limited Land Cover

- 1% (251 Acres) **Harvested forest-tree regeneration**
- 1% (236 Acres) **Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland**
- 1% (230 Acres) **Northern Rocky Mountain Lower Montane Riparian Woodland and Shrubland**
- 1% (223 Acres) **Open Water**
- 1% (179 Acres) **Other Roads**
- 1% (172 Acres) **Rocky Mountain Cliff, Canyon and Massive Bedrock**
- 1% (159 Acres) **Rocky Mountain Subalpine Deciduous Shrubland**
- 1% (147 Acres) **Railroad**
- 1% (107 Acres) **Cultivated Crops**
- <1% (90 Acres) **Rocky Mountain Subalpine-Upper Montane Grassland**
- <1% (81 Acres) **Low Intensity Residential**
- <1% (78 Acres) **Introduced Upland Vegetation - Perennial Grassland and Forbland**
- <1% (68 Acres) **Alpine-Montane Wet Meadow**

<1% (62 Acres) ■ Major Roads

<1% (56 Acres) ■ Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland

<1% (55 Acres) ■ Harvested forest-grass regeneration

<1% (42 Acres) ■ Insect-Killed Forest

<1% (33 Acres) ■ Developed, Open Space

<1% (28 Acres) ■ Pasture/Hay

<1% (26 Acres) ■ Rocky Mountain Subalpine-Montane Mesic Meadow

<1% (17 Acres) ■ Rocky Mountain Lodgepole Pine Forest

<1% (12 Acres) ■ Harvested forest-shrub regeneration

<1% (10 Acres) ■ Emergent Marsh

<1% (5 Acres) ■ Commercial / Industrial

<1% (5 Acres) ■ Alpine Turf

<1% (5 Acres) ■ High Intensity Residential

<1% (2 Acres) ■ Recently burned shrubland

<1% (2 Acres) ■ Aspen Forest and Woodland

<1% (2 Acres) ■ Montane Sagebrush Steppe

<1% (2 Acres) ■ Introduced Upland Vegetation - Annual and Biennial Forbland

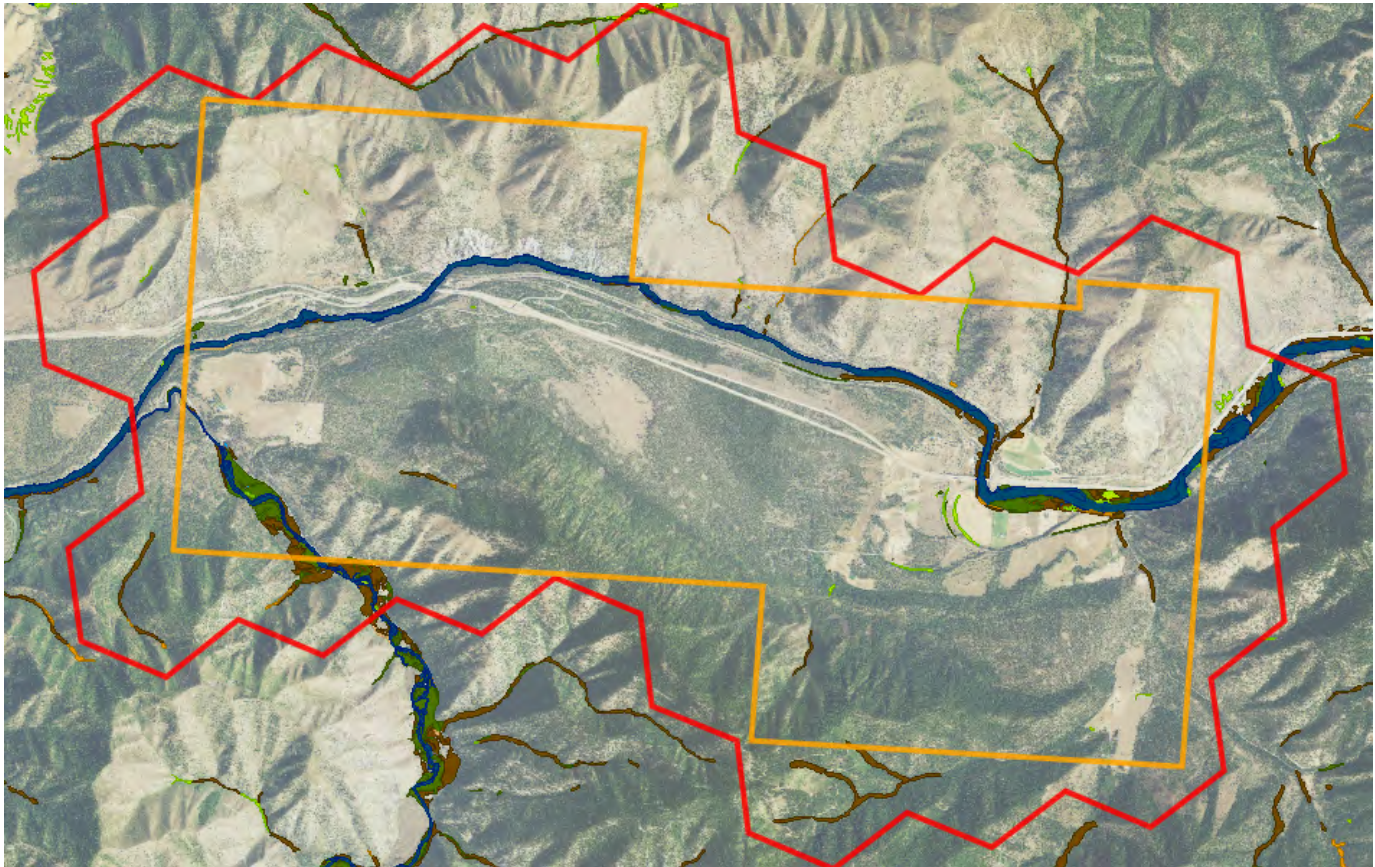
<1% (0 Acres) ■ Aspen and Mixed Conifer Forest

<1% (0 Acres) ■ Rocky Mountain Subalpine Woodland and Parkland



Wetland and Riparian

Summarized by: **23MT0003 - Alberton Geotech Biological Assessment (Custom Area of Interest)**



Wetland and Riparian Mapping

[Explain](#)

P - Palustrine

AB - Aquatic Bed

F - Semipermanently Flooded	4 Acres
(no modifier)	4 Acres PABF
x - Excavated	<1 Acres PABFx

P - Palustrine, AB - Aquatic Bed

Wetlands with vegetation growing on or below the water surface for most of the growing season.

EM - Emergent

A - Temporarily Flooded	32 Acres
(no modifier)	31 Acres PEMA
x - Excavated	1 Acres PEMAx

P - Palustrine, EM - Emergent

Wetlands with erect, rooted herbaceous vegetation present during most of the growing season.

C - Seasonally Flooded	1 Acres
x - Excavated	1 Acres PEMCx

SS - Scrub-Shrub

A - Temporarily Flooded	61 Acres
(no modifier)	58 Acres PSSA
x - Excavated	3 Acres PSSAx

P - Palustrine, SS - Scrub-Shrub

Wetlands dominated by woody vegetation less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.

FO - Forested

A - Temporarily Flooded	38 Acres
(no modifier)	38 Acres PFOA

P - Palustrine, FO - Forested

Wetlands dominated by woody vegetation greater than 6 meters (20 feet) tall.

R - Riverine (Rivers)

3 - Upper Perennial

UB - Unconsolidated Bottom

H - Permanently Flooded	268 Acres
(no modifier)	268 Acres R3UBH

R - Riverine (Rivers), 3 - Upper Perennial, UB - Unconsolidated Bottom

Stream channels where the substrate is at least 25% mud, silt or other fine particles.

US - Unconsolidated Shore




A - Temporarily Flooded	72 Acres
(no modifier)	72 Acres R3USA
C - Seasonally Flooded	19 Acres

R - Riverine (Rivers), 3 - Upper Perennial, US - Unconsolidated Shore

Shorelines with less than 75% areal cover of stones, boulders, or bedrock and less than 30% vegetation cover. The area is also irregularly exposed due to seasonal or irregular flooding and subsequent drying.

Rp - Riparian

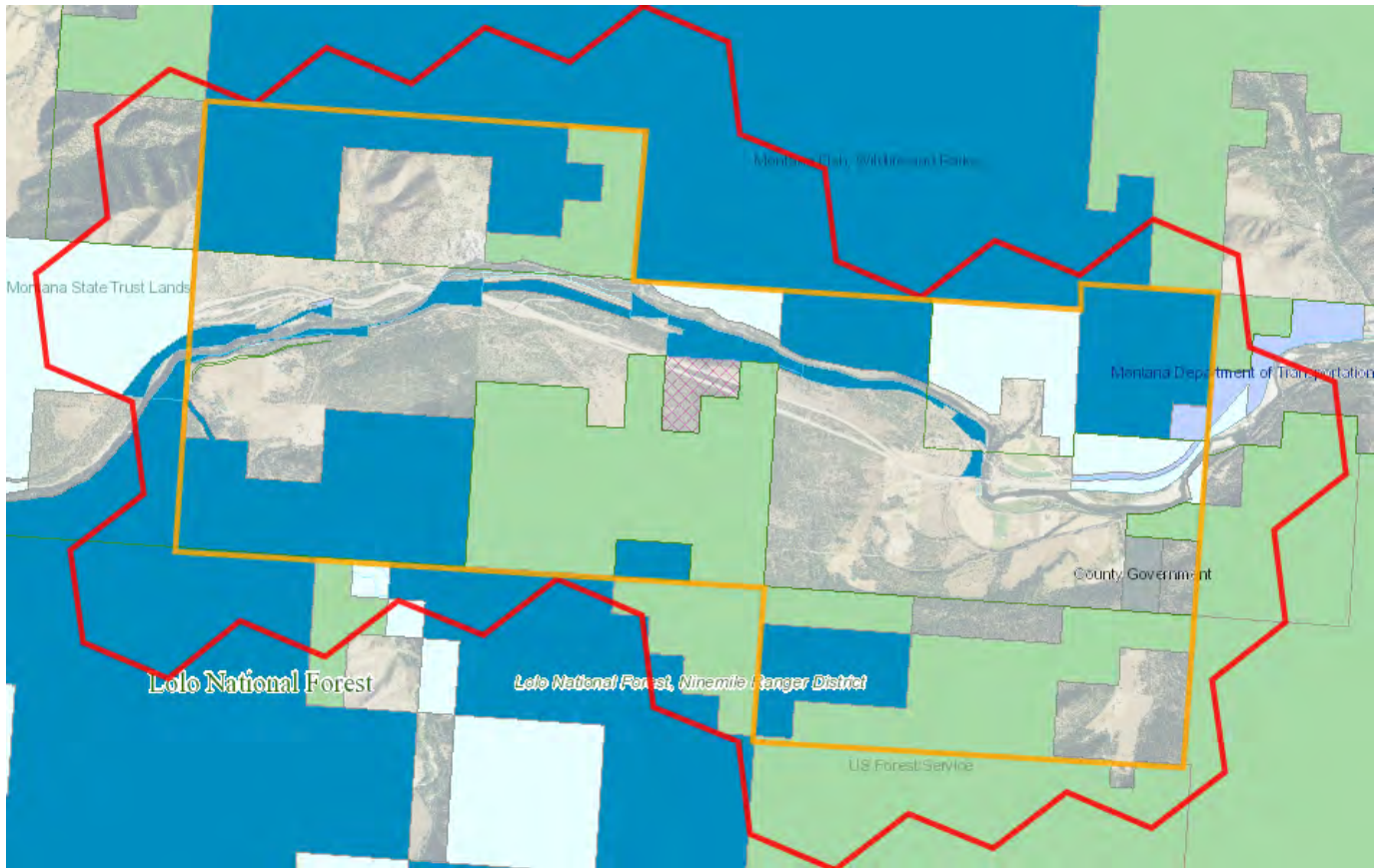
1 - Lotic

 SS - Scrub-Shrub (no modifier)	10 Acres Rp1SS	Rp - Riparian, 1 - Lotic, SS - Scrub-Shrub <i>This type of riparian area is dominated by woody vegetation that is less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.</i>
 FO - Forested (no modifier)	241 Acres Rp1FO	Rp - Riparian, 1 - Lotic, FO - Forested <i>This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.</i>
 EM - Emergent (no modifier)	2 Acres Rp1EM	Rp - Riparian, 1 - Lotic, EM - Emergent <i>Riparian areas that have erect, rooted herbaceous vegetation during most of the growing season.</i>



Land Management

Summarized by: **23MT0003 - Alberton Geotech Biological Assessment (Custom Area of Interest)**



Land Management Summary

[Explain](#)

	Ownership	Tribal	Easements	Other Boundaries (possible overlap)
Public Lands	13,960 Acres (70%)			
Federal	5,287 Acres (27%)			
US Forest Service	5,287 Acres (27%)			
USFS Owned	5,287 Acres (27%)			
USFS Ranger Districts				12,682 Acres
Lolo National Forest, Ninemile Ranger District				12,682 Acres
USFS National Forest Boundaries				12,682 Acres
Lolo National Forest				12,682 Acres
State	8,593 Acres (43%)			
Montana State Trust Lands	1,319 Acres (7%)			
MT State Trust Owned	1,319 Acres (7%)			
Montana Fish, Wildlife and Parks	7,140 Acres (36%)			
MTFWP Owned	7,140 Acres (36%)			
MTFWP Fishing Access Sites				486 Acres
Alberton Gorge Fishing Access Site				214 Acres
Big Pine Fishing Access Site				18 Acres
Cyr Bridge Fishing Access Site				12 Acres
Lower Osprey Fishing Access Site				8 Acres
Middle Osprey Fishing Access Site				15 Acres
Ralph's Takeout Fishing Access Site				78 Acres
St. John's Fishing Access Site				93 Acres
Tarkio East Fishing Access Site				7 Acres
Upper Osprey Fishing Access Site				41 Acres
Montana Department of Transportation	134 Acres (1%)			
MTDOT Owned	134 Acres (1%)			
Local	80 Acres (<1%)			
Local Government	80 Acres (<1%)			
Local Government Owned	80 Acres (<1%)			
Conservation Easements			121 Acres (1%)	
Private			121 Acres (1%)	
Five Valleys Land Trust			121 Acres (1%)	



Biological Reports

Summarized by: **23MT0003 - Alberton Geotech Biological Assessment** (*Custom Area of Interest*)

Within the report area you have requested, citations for all reports and publications associated with plant or animal observations in Montana Natural Heritage Program (MTNHP) databases are listed and, where possible, links to the documents are included.

The MTNHP plans to include reports associated with terrestrial and aquatic communities in the future as allowed for by staff resources. If you know of reports or publications associated with species or biological communities within the report area that are not shown in this report, please let us know: mtnhp@mt.gov

- Rogers, Ralph and Jay Sumner. 2004. Montana Peregrine Falcon Survey. Centmont Bioconsultants. Winifred, Montana. 32 pp plus appendix.
- Sumner, Jay and Ralph Rogers. 2006. Montana Peregrine Falcon Survey. Montana Peregrine Institute. Arlee, Montana. 36 pp plus appendix.

Legend			
Model Icons	Habitat Icons	Range Icons	Num Obs
Suitable (native range)	Common	Non-native	Count of obs with 'good precision' (<=1000m)
Optimal Suitability	Occasional		+ indicates additional 'poor precision' obs (1001m-10,000m)
Moderate Suitability			
Low Suitability			
Suitable (introduced range)			



Latitude 46.96051
Longitude -114.53141
47.05262 -114.70933

Invasive and Pest Species

Summarized by: **23MT0003 - Alberton Geotech Biological Assessment (Custom Area of Interest)**

	# Obs	Predicted Model	Range
Aquatic Invasive Species			
V - Iris pseudacorus (<i>Yellowflag Iris</i>) N2A/AIS			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: GNR State: SNA Predicted Models: 6% Optimal (inductive), 29% Moderate (inductive), 29% Low (inductive)			
V - Potamogeton crispus (<i>Curly-leaf Pondweed</i>) N2B/AIS			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2B - Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predicted Models: 6% Moderate (inductive), 77% Low (inductive)			
A - American Bullfrog (<i>Lithobates catesbeianus</i>) AIS			
View in Field Guide View Predicted Models View Range Maps Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predicted Models: 6% Moderate (inductive), 61% Low (inductive)			
V - Butomus umbellatus (<i>Flowering-rush</i>) N2A/AIS			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predicted Models: 6% Moderate (inductive), 32% Low (inductive)			
V - Myriophyllum spicatum (<i>Eurasian Water-milfoil</i>) N2A/AIS			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: GNR State: SNA Predicted Models: 3% Moderate (inductive), 32% Low (inductive)			
V - Nymphaea odorata (<i>American Water-lily</i>) AIS			
View in Field Guide View Predicted Models View Range Maps Aquatic Invasive Species - Non-native Species Global: G5 State: SNA Predicted Models: 39% Suitable (introduced range) (deductive)			
Noxious Weeds: Priority 1A			
V - Centaurea solstitialis (<i>Yellow Starthistle</i>) N1A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: GNR State: SNA Predicted Models: 3% Optimal (inductive), 26% Moderate (inductive), 23% Low (inductive)			
V - Taeniatherum caput-medusae (<i>Medusahead</i>) N1A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: G4G5 State: SNA Predicted Models: 10% Moderate (inductive), 65% Low (inductive)			
V - Isatis tinctoria (<i>Dyer's Wood</i>) N1A			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1A - Non-native Species Global: GNR State: SNA Predicted Models: 3% Moderate (inductive), 29% Low (inductive)			
Noxious Weeds: Priority 1B			
V - Echium vulgare (<i>Blueweed</i>) N1B	1		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNR State: SNA Predicted Models: 13% Optimal (inductive), 32% Moderate (inductive), 55% Low (inductive)			
V - Cytisus scoparius (<i>Scotch Broom</i>) N1B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNR State: SNA Predicted Models: 13% Optimal (inductive), 32% Moderate (inductive), 48% Low (inductive)			
V - Chondrilla juncea (<i>Rush Skeletonweed</i>) N1B	3		
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNR State: SNA Predicted Models: 3% Optimal (inductive), 26% Moderate (inductive), 42% Low (inductive)			
V - Polygonum x bohemicum (<i>Bohemian Knotweed</i>) N1B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: GNA State: SNA Predicted Models: 3% Optimal (inductive), 26% Moderate (inductive), 13% Low (inductive)			
V - Lythrum salicaria (<i>Purple Loosestrife</i>) N1B			
View in Field Guide View Predicted Models View Range Maps Noxious Weed: Priority 1B - Non-native Species Global: G5 State: SNA Predicted Models: 10% Moderate (inductive), 29% Low (inductive)			
V - Polygonum cuspidatum (<i>Japanese Knotweed</i>) N1B			

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 1B - Non-native Species Global: **GNRTNR** State: **SNA**
Predicted Models: 68% Low (inductive)

Noxious Weeds: Priority 2A

V - Hieracium praealtum (*Kingdevil Hawkweed*) **N2A**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: 39% Optimal (inductive), 42% Moderate (inductive), 6% Low (inductive)

V - Ventenata dubia (*Ventenata*) **N2A**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: 35% Optimal (inductive), 39% Moderate (inductive), 19% Low (inductive)

V - Lepidium latifolium (*Perennial Pepperweed*) **N2A**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: 13% Optimal (inductive), 19% Moderate (inductive), 35% Low (inductive)

V - Iris pseudacorus (*Yellowflag Iris*) **N2A/AIS**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: 6% Optimal (inductive), 29% Moderate (inductive), 29% Low (inductive)

V - Hieracium caespitosum (*Meadow Hawkweed*) **N2A**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: 90% Moderate (inductive), 10% Low (inductive)

V - Hieracium aurantiacum (*Orange Hawkweed*) **N2A**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: 45% Moderate (inductive), 52% Low (inductive)

V - Rhamnus cathartica (*Common Buckthorn*) **N2A**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: 26% Moderate (inductive), 26% Low (inductive)

V - Ranunculus acris (*Tall Buttercup*) **N2A**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2A - Non-native Species Global: **G5** State: **SNA**
Predicted Models: 16% Moderate (inductive), 81% Low (inductive)

V - Butomus umbellatus (*Flowering-rush*) **N2A/AIS**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: **G5** State: **SNA**
Predicted Models: 6% Moderate (inductive), 32% Low (inductive)

V - Senecio jacobaea (*Tansy Ragwort*) **N2A**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2A - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: 3% Moderate (inductive), 52% Low (inductive)

V - Myriophyllum spicatum (*Eurasian Water-milfoil*) **N2A/AIS**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2A - Aquatic Invasive Species - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: 3% Moderate (inductive), 32% Low (inductive)

Noxious Weeds: Priority 2B

V - Potentilla recta (*Sulphur Cinquefoil*) **N2B**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: 39% Optimal (inductive), 52% Moderate (inductive), 9% Low (inductive)

V - Hypericum perforatum (*Common St. John's-wort*) **N2B**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: 32% Optimal (inductive), 61% Moderate (inductive), 6% Low (inductive)

V - Linaria dalmatica (*Dalmatian Toadflax*) **N2B**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **G5** State: **SNA**
Predicted Models: 26% Optimal (inductive), 55% Moderate (inductive), 16% Low (inductive)

V - Tanacetum vulgare (*Common Tansy*) **N2B**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: 23% Optimal (inductive), 61% Moderate (inductive), 16% Low (inductive)

V - Leucanthemum vulgare (*Oxeye Daisy*) **N2B**

[View in Field Guide](#) [View Predicted Models](#) [View Range Maps](#)
Noxious Weed: Priority 2B - Non-native Species Global: **GNR** State: **SNA**
Predicted Models: 13% Optimal (inductive), 48% Moderate (inductive), 39% Low (inductive)

V - Linaria vulgaris (*Yellow Toadflax*) **N2B**

View in Field Guide View Predicted Models View Range Maps				
Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA				
Predicted Models: 3% Optimal (inductive), 71% Moderate (inductive), 26% Low (inductive)				
<input type="checkbox"/> V - Cynoglossum officinale (<i>Common Hound's-tongue</i>) N2B		41		
View in Field Guide View Predicted Models View Range Maps				
Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA				
Predicted Models: 3% Optimal (inductive), 58% Moderate (inductive), 39% Low (inductive)				
<input type="checkbox"/> V - Centaurea stoebe (<i>Spotted Knapweed</i>) N2B		245		
View in Field Guide View Predicted Models View Range Maps				
Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA				
Predicted Models: 55% Moderate (inductive), 45% Low (inductive)				
<input type="checkbox"/> V - Berteroa incana (<i>Hoary False-allyssum</i>) N2B				
View in Field Guide View Predicted Models View Range Maps				
Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA				
Predicted Models: 23% Moderate (inductive), 61% Low (inductive)				
<input type="checkbox"/> V - Cirsium arvense (<i>Canada Thistle</i>) N2B		23		
View in Field Guide View Predicted Models View Range Maps				
Noxious Weed: Priority 2B - Non-native Species Global: G5 State: SNA				
Predicted Models: 19% Moderate (inductive), 65% Low (inductive)				
<input type="checkbox"/> V - Centaurea diffusa (<i>Diffuse Knapweed</i>) N2B		1		
View in Field Guide View Predicted Models View Range Maps				
Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA				
Predicted Models: 13% Moderate (inductive), 65% Low (inductive)				
<input type="checkbox"/> V - Potamogeton crispus (<i>Curly-leaf Pondweed</i>) N2B/AIS				
View in Field Guide View Predicted Models View Range Maps				
Noxious Weed: Priority 2B - Aquatic Invasive Species - Non-native Species Global: G5 State: SNA				
Predicted Models: 6% Moderate (inductive), 77% Low (inductive)				
<input type="checkbox"/> V - Euphorbia virgata (<i>Leafy Spurge</i>) N2B		93		
View in Field Guide View Predicted Models View Range Maps				
Noxious Weed: Priority 2B - Non-native Species Global: GNRTR State: SNA				
Predicted Models: 3% Moderate (inductive), 65% Low (inductive)				
<input type="checkbox"/> V - Lepidium draba (<i>Whiteweed</i>) N2B				
View in Field Guide View Predicted Models View Range Maps				
Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA				
Predicted Models: 3% Moderate (inductive), 45% Low (inductive)				
<input type="checkbox"/> V - Acroptilon repens (<i>Russian Knapweed</i>) N2B				
View in Field Guide View Predicted Models View Range Maps				
Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA				
Predicted Models: 48% Low (inductive)				
<input type="checkbox"/> V - Convolvulus arvensis (<i>Field Bindweed</i>) N2B				
View in Field Guide View Predicted Models View Range Maps				
Noxious Weed: Priority 2B - Non-native Species Global: GNR State: SNA				
Predicted Models: 23% Low (inductive)				
Regulated Weeds: Priority 3				
<input type="checkbox"/> V - Bromus tectorum (<i>Cheatgrass</i>) R3		4		
View in Field Guide View Predicted Models View Range Maps				
Regulated Weed: Priority 3 - Non-native Species Global: GNR State: SNA				
Predicted Models: 35% Optimal (inductive), 58% Moderate (inductive), 6% Low (inductive)				
Biocontrol Species				
<input type="checkbox"/> I - Mecinus janthinus (<i>Yellow Toadflax Stem-boring Weevil</i>) BIOCNTRL				
View in Field Guide View Predicted Models View Range Maps				
Biocontrol Species - Non-native Species Global: GNR State: SNA				
Predicted Models: 58% Optimal (inductive), 13% Moderate (inductive), 26% Low (inductive)				
<input type="checkbox"/> I - Mecinus janthiniformis (<i>Dalmatian Toadflax Stem-boring Weevil</i>) BIOCNTRL				
View in Field Guide View Predicted Models View Range Maps				
Biocontrol Species - Non-native Species Global: GNR State: SNA				
Predicted Models: 3% Optimal (inductive), 48% Moderate (inductive), 42% Low (inductive)				
<input type="checkbox"/> I - Cyphocleonus achates (<i>Knapweed Root Weevil</i>) BIOCNTRL				
View in Field Guide View Predicted Models View Range Maps				
Biocontrol Species - Non-native Species Global: GNR State: SNA				
Predicted Models: 55% Moderate (inductive), 29% Low (inductive)				
<input type="checkbox"/> I - Oberea erythrocephala (<i>Red-headed Leafy Spurge Stem Borer</i>) BIOCNTRL				
View in Field Guide View Predicted Models View Range Maps				
Biocontrol Species - Non-native Species Global: GNR State: SNA				
Predicted Models: 19% Moderate (inductive), 61% Low (inductive)				

Introduction to Montana Natural Heritage Program



P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • fax 406.444.0266 • phone 406.444.5363 • mtnhp.org

INTRODUCTION

The Montana Natural Heritage Program (MTNHP) is Montana's source for reliable and objective information on Montana's native species and habitats, emphasizing those of conservation concern. MTNHP was created by the Montana legislature in 1983 as part of the Natural Resource Information System (NRIS) at the Montana State Library (MSL). MTNHP is "a program of information acquisition, storage, and retrieval for data relating to the flora, fauna, and biological community types of Montana" (MCA 90-15-102). MTNHP's activities are guided by statute as well as through ongoing interaction with, and feedback from, principal data source agencies such as Montana Fish, Wildlife, and Parks, the Montana Department of Environmental Quality, the Montana Department of Natural Resources and Conservation, the Montana University System, the US Forest Service, and the US Bureau of Land Management. Since the first staff was hired in 1985, the Program has logged a long record of success, and developed into a highly respected, service-oriented program. MTNHP is widely recognized as one of the most advanced and effective of over 80 natural heritage programs throughout the Western Hemisphere.

VISION

Our vision is that public agencies, the private sector, the education sector, and the general public will trust and rely upon MTNHP as the source for information and expertise on Montana's species and habitats, especially those of conservation concern. We strive to provide easy access to our information in order for users to save time and money, speed environmental reviews, and inform decision making.

CORE VALUES

- We endeavor to be a single statewide source of accurate and up-to-date information on Montana's plants, animals, and aquatic and terrestrial biological communities.
- We actively listen to our data users and work responsively to meet their information and training needs.
- We strive to provide neutral, trusted, timely, and equitable service to all of our information users.
- We make every effort to be transparent to our data users in setting work priorities and providing data products.

CONFIDENTIALITY

All information requests made to the Montana Natural Heritage Program are considered library records and are protected from disclosure by the Montana Library Records Confidentiality Act (MCA 22-1-11).

INFORMATION MANAGED

Information managed at the Montana Natural Heritage Program is botanical, zoological, and ecological information that describes the distribution (e.g., observations, structured surveys, range polygons, predicted habitat suitability models), conservation status (e.g., global and state conservation status ranks, including threats), and other supporting information (e.g., accounts and references) on the biology and ecology of species and biological communities.

Data Use Terms and Conditions


- Montana Natural Heritage Program (MTNHP) products and services are based on biological data and the objective interpretation of those data by professional scientists. MTNHP does not advocate any particular philosophy of natural resource protection, management, development, or public policy.
- MTNHP has no natural resource management or regulatory authority. Products, statements, and services from MTNHP are intended to inform parties as to the state of scientific knowledge about certain natural resources, and to further develop that knowledge. The information is not intended as natural resource management guidelines or prescriptions or a determination of environmental impacts. MTNHP recommends consultation with appropriate state, federal, and tribal resource management agencies and authorities in the area where your project is located.
- Information on the status and spatial distribution of biological resources produced by MTNHP are intended to inform parties of the state-wide status, known occurrence, or the likelihood of the presence of those resources. **These products are not intended to substitute for field-collected data, nor are they intended to be the sole basis for natural resource management decisions.**
- MTNHP does not portray its data as exhaustive or comprehensive inventories of rare species or biological communities. **Field verification of the absence or presence of sensitive species and biological communities will always be an important obligation of users of our data.**
- MTNHP responds equally to all requests for products and services, regardless of the purpose or identity of the requester.
- Because MTNHP constantly updates and revises its databases with new data and information, products will become outdated over time. Interested parties are encouraged to obtain the most current information possible from MTNHP, rather than using older products. We add, review, update, and delete records on a daily basis. Consequently, we strongly advise that you update your MTNHP data sets at a minimum of every four months for most applications of our information.
- MTNHP data require a certain degree of biological expertise for proper analysis, interpretation, and application. Our staff is available to advise you on questions regarding the interpretation or appropriate use of the data that we provide. See [Contact Information for MTNHP Staff](#)
- The information provided to you by MTNHP may include sensitive data that if publicly released might jeopardize the welfare of threatened, endangered, or sensitive species or biological communities. This information is intended for distribution or use only within your department, agency, or business. Subcontractors may have access to the data during the course of any given project, but should not be given a copy for their use on subsequent, unrelated work.
- MTNHP data are made freely available. Duplication of hard-copy or digital MTNHP products with the intent to sell is prohibited without written consent by MTNHP. Should you be asked by individuals outside your organization for the type of data that we provide, please refer them to MTNHP.
- MTNHP and appropriate staff members should be appropriately acknowledged as an information source in any third-party product involving MTNHP data, reports, papers, publications, or in maps that incorporate MTNHP graphic elements.
- Sources of our data include museum specimens, published and unpublished scientific literature, field surveys by state and federal agencies and private contractors, and reports from knowledgeable individuals. MTNHP actively solicits and encourages additions, corrections and updates, new observations or collections, and comments on any of the data we provide.
- MTNHP staff and contractors do not enter or cross privately-owned lands without express permission from the landowner. However, the program cannot guarantee that information provided to us by others was obtained under adherence to this policy.

Suggested Contacts for Natural Resource Management Agencies

As required by Montana statute (MCA 90-15), the Montana Natural Heritage Program works with state, federal, tribal, nongovernmental organizations, and private partners to ensure that the latest animal and plant distribution and status information is incorporated into our databases so that it can be used to inform a variety of permitting and planning processes and management decisions. We encourage you to contact state, federal, and tribal resource management agencies in the area where your project is located and review the permitting overviews by the [Montana Department of Environmental Quality](#), the [Montana Department of Natural Resources and Conservation](#) and the [Index of Environmental Permits for Montana](#) for guidelines relevant to your efforts. In particular, we encourage you to contact the Montana Department of Fish, Wildlife, and Parks for the latest data and management information regarding hunted and high-profile management species and to use the U.S. Fish and Wildlife Service’s [Information Planning and Consultation \(IPAC\) website](#) regarding U.S. Endangered Species Act listed Threatened, Endangered, or Candidate species.

For your convenience, we have compiled a list of relevant agency contacts and links below:

Montana Fish, Wildlife, and Parks

Fish Species	Zachary Shattuck zshattuck@mt.gov (406) 444-1231 or Eric Roberts eroberts@mt.gov (406) 444-5334
American Bison Black-footed Ferret Black-tailed Prairie Dog Bald Eagle Golden Eagle Common Loon Least Tern Piping Plover Whooping Crane	Kristian Smucker KSmucker@mt.gov (406) 444-5209
Grizzly Bear Greater Sage Grouse Trumpeter Swan Big Game Upland Game Birds Furbearers	Brian Wakeling Brian.Wakeling@mt.gov (406) 444-3940
Managed Terrestrial Game and Nongame Animal Data	Smith Wells – MFWP Data Analyst smith.wells@mt.gov (406) 444-3759
Fisheries Data	Ryan Alger – MFWP Data Analyst ryan.alger@mt.gov (406) 444-5365
Wildlife and Fisheries Scientific Collector’s Permits	https://fwp.mt.gov/buyandapply/commercialwildlifeandscientificpermits/scientific Kammi McClain for Wildlife Kammi.McClain@mt.gov (406) 444-2612 Kim Wedde for Fisheries kim.wedde@mt.gov (406) 444-5594
Fish and Wildlife Recommendations for Subdivision Development	Charlie Sperry CSperry@mt.gov (406) 444-3888 See https://fwp.mt.gov/conservation/living-with-wildlife/subdivision-recommendations
Regional Contacts 	Region 1 (Kalispell) (406) 752-5501 fwprg12@mt.gov Region 2 (Missoula) (406) 542-5500 fwprg22@mt.gov Region 3 (Bozeman) (406) 577-7900 fwprg3@mt.gov Region 4 (Great Falls) (406) 454-5840 fwprg42@mt.gov Region 5 (Billings) (406) 247-2940 fwprg52@mt.gov Region 6 (Glasgow) (406) 228-3700 fwprg62@mt.gov Region 7 (Miles City) (406) 234-0900 fwprg72@mt.gov

Montana Department of Agriculture

General Contact Information: <https://agr.mt.gov/About/Office-Locations/Office-Locations-and-Field-Offices>

Noxious Weeds: <https://agr.mt.gov/Noxious-Weeds>

Montana Department of Environmental Quality

Permitting and Operator Assistance for all Environmental Permits: <https://deq.mt.gov/Permitting>

Montana Department of Natural Resources and Conservation

Overview of, and contacts for, licenses and permits for state lands, water, and forested lands:

<http://dnrc.mt.gov/licenses-and-permits>

Stream Permitting (310 permits) and an overview of various water and stream related permits (e.g., Stream Protection Act 124, Federal Clean Water Act 404, Federal Rivers and Harbors Act Section 10, Short-term Water Quality Standard for Turbidity 318 Authorization, etc.).

<http://dnrc.mt.gov/divisions/cadd/conservation-districts/the-310-law>

Flood and Fire Resources: <http://dnrc.mt.gov/flood-and-fire>

Bureau of Land Management

Montana Field Office Contacts:	
	
Billings	(406) 896-5013
Butte	(406) 533-7600
Dillon	(406) 683-8000
Glasgow	(406) 228-3750
Havre	(406) 262-2820
Lewistown	(406) 538-1900
Malta	(406) 654-5100
Miles City	(406) 233-2800
Missoula	(406) 329-3914

United States Army Corps of Engineers

Montana Regulatory Office for federal permits related to construction in water and wetlands

<https://www.nwo.usace.army.mil/Missions/Regulatory-Program/Montana/> (406) 441-1375

United States Environmental Protection Agency

Environmental information, notices, permitting, and contacts <https://www.epa.gov/mt>

Gateway to state resource locators <https://www.envcap.org/srl/index.php>

United States Fish and Wildlife Service

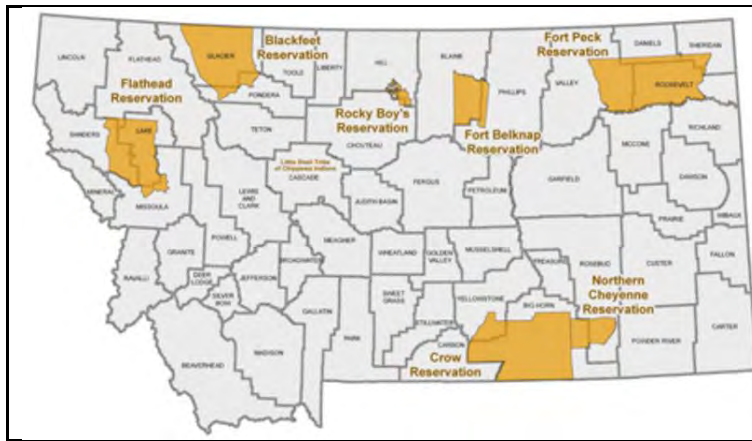
Information Planning and Conservation (IPAC) website: <https://ecos.fws.gov/ipac/>

Montana Ecological Services Field Office: <https://www.fws.gov/montanafieldoffice/> (406) 449-5225

United States Forest Service

Regional Office – Missoula, Montana Contacts			
Wildlife Program Leader	Tammy Fletcher	tammy.fletcher2@usda.gov	(406) 329-3086
Wildlife Ecologist	Cara Staab	cara.staab@usda.gov	(406) 329-3677
Fish Program Leader	Scott Spaulding	scott.spaulding@usda.gov	(406) 329-3287
Fish Ecologist	Cameron Thomas	cameron.thomas@usda.gov	(406) 329-3087
TES Program	Lydia Allen	lydia.allen@usda.gov	(406) 329-3558
Interagency Grizzly Bear Coordinator	Scott Jackson	scott.jackson@usda.gov	(406) 329-3664
Acting Regional Botanist	Amanda Hendrix	amanda.hendrix@usda.gov	(651) 447-3016
Regional Vegetation Ecologist	Mary Manning	marry.manning@usda.gov	(406) 329-3304
Invasive Species Program Manager	Michelle Cox	michelle.cox2@usda.gov	(406) 329-3669

Tribal Nations



[Assiniboine & Gros Ventre Tribes – Fort Belknap Reservation](#)

[Assiniboine & Sioux Tribes – Fort Peck Reservation](#)

[Blackfoot Tribe - Blackfoot Reservation](#)

[Chippewa Creek Tribe - Rocky Boy's Reservation](#)

[Crow Tribe – Crow Reservation](#)

[Little Shell Chippewa Tribe](#)

[Northern Cheyenne Tribe – Northern Cheyenne Reservation](#)

[Salish & Kootenai Tribes - Flathead Reservation](#)

Natural Heritage Programs and Conservation Data Centers in Surrounding States and Provinces

[Alberta Conservation Information Management System](#)

[British Columbia Conservation Data Centre](#)

[Idaho Natural Heritage Program](#)

[North Dakota Natural Heritage Program](#)

[Saskatchewan Conservation Data Centre](#)

[South Dakota Natural Heritage Program](#)

[Wyoming Natural Diversity Database](#)

Invasive Species Management Contacts and Information

Aquatic Invasive Species

[Montana Fish, Wildlife, and Parks Aquatic Invasive Species staff](#)

[Montana Department of Natural Resources and Conservation's Aquatic Invasive Species Grant Program](#)

[Montana Invasive Species Council \(MISC\)](#)

[Upper Columbia Conservation Commission \(UC3\)](#)

Noxious Weeds

[Montana Weed Control Association Contacts Webpage](#)

[Montana Biological Weed Control Coordination Project](#)

[Montana Department of Agriculture - Noxious Weeds](#)

[Montana Weed Control Association](#)

[Montana Fish, Wildlife, and Parks - Noxious Weeds](#)

[Montana State University Integrated Pest Management Extension](#)

[Integrated Noxious Weed Management after Wildfires](#)

[Fire Management and Invasive Plants](#)

Introduction to Native Species

Within the report area you have requested, separate summaries are provided for: (1) Species Occurrences (SO) for plant and animal Species of Concern, Special Status Species (SSS), Important Animal Habitat (IAH) and some Potential Plant Species of Concern; (2) other observed non Species of Concern or Species of Concern without suitable documentation to create Species Occurrence polygons; and (3) other non-documented species that are potentially present based on their range, predicted suitable habitat model output, or presence of associated habitats. Each of these summaries provides the following information when present for a species: (1) the number of [Species Occurrences](#) and associated delineation criteria for construction of these polygons that have long been used for considerations of documented Species of Concern in environmental reviews; (2) the number of observations of each species; (3) the geographic range polygons for each species that the report area overlaps; (4) predicted relative habitat suitability classes that are present if a predicted suitable habitat model has been created; (5) the percent of the report area that is mapped as commonly associated or occasionally associated habitat as listed for each species in the [Montana Field Guide](#); and (6) a variety of conservation status ranks and links to species accounts in the [Montana Field Guide](#). Details on each of these information categories are included under relevant section headers below or are defined on our [Species Status Codes](#) page. In presenting this information, the Montana Natural Heritage Program (MTNHP) is working towards assisting the user with rapidly determining what species have been documented and what species are potentially present in the report area. We remind users that this information is likely incomplete as surveys to document native and introduced species are lacking in many areas of the state, information on introduced species has only been tracked relatively recently, the MTNHP's staff and resources are restricted by budgets, and information is constantly being added and updated in our databases. **Thus, field verification by professional biologists of the absence or presence of species and biological communities will always be an important obligation of users of our data.**

If you are aware of observation datasets that the MTNHP is missing, please report them to the Program Botanist apipp@mt.gov or Senior Zoologist dbachen@mt.gov. If you have animal observations that you would like to contribute, you can submit them to our [Animal Observation Entry Tool](#). You can also submit plant and animal observations via Excel spreadsheets posted at <https://mtnhp.org/observations.asp> or via the [Montana Natural Heritage Observations project in iNaturalist](#)

Observations

The MTNHP manages information on several million animal and plant observations that have been reported by professional biologists and private citizens from across Montana. The majority of these observations are submitted in digital format from standardized databases associated with research or monitoring efforts and spreadsheets of incidental observations submitted by professional biologists and amateur naturalists. At a minimum, accepted observation records must contain a credible species identification (i.e. appropriate geographic range, date, and habitat and, if species are difficult to identify, a photograph and/or notes on key identifying features), a date or date range, observer name, locational information (ideally with latitude and longitude in decimal degrees), notes on numbers observed, and species behavior or habitat use (e.g., is the observation likely associated with reproduction). Bird records are also required to have information associated with date-appropriate breeding or overwintering status of the species observed. MTNHP reviews observation records to ensure that they are mapped correctly, occur within date ranges when the species is known to be present or detectable, occur within the known seasonal geographic range of the species, and occur in appropriate habitats. MTNHP also assigns each record a locational uncertainty value in meters to indicate the spatial precision associated with the record's mapped coordinates. Only records with locational uncertainty values of 10,000 meters or less are included in environmental summary reports and number summaries are only provided for records with locational uncertainty values of 1,000 meters or less.

Species Occurrences

The MTNHP evaluates plant and animal observation records for species of higher conservation concern to determine whether they are worthy of inclusion in the [Species Occurrence](#) (SO) layer for use in environmental reviews; observations not worthy of inclusion in this layer include long distance dispersal events, migrants observed away from key migratory stopover habitats, and winter observations. An SO is a polygon depicting what is known about a species occupancy from direct observation with a defined level of locational uncertainty and any inference that can be made about adjacent habitat use from the latest peer-reviewed science. If an observation can be associated with a map feature that can be tracked (e.g., a wetland boundary for a wetland associated plant) then this polygon feature is used to represent the SO. Areas that can be inferred as probable occupied habitat based on direct observation of a species location and what is known about the foraging area or home range size of the species may be incorporated into the SO. Species Occurrences generally belong to one of the following categories:

Plant Species Occurrences

A documented location of a specimen collection or observed plant population. In some instances, adjacent, spatially separated clusters are considered subpopulations and are grouped as one occurrence (e.g., the subpopulations occur in ecologically similar habitats, and their spatial proximity likely allows them to interbreed). Tabular information for multiple observations at the same SO location is generally linked to a single polygon. Plant SO's are only created for Species of Concern and Potential Species of Concern.

Animal Species Occurrences

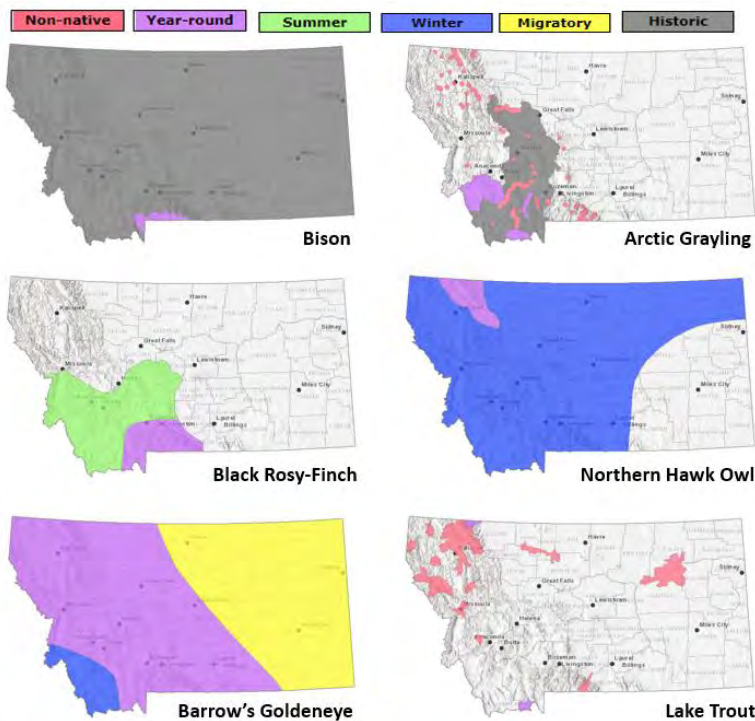
The location of a verified observation or specimen record typically known or assumed to represent a breeding population or a portion of a breeding population. Animal SO's are generally: (1) buffers of terrestrial point observations based on documented species' home range sizes; (2) buffers of stream segments to encompass occupied streams and immediate adjacent riparian habitats; (3) polygonal features encompassing known or likely breeding populations (e.g., a wetland for some amphibians or a forested portion of a mountain range for some wide ranging carnivores); or (4) combinations of the above. Tabular information for multiple observations at the same SO location is generally linked to a single polygon. Species Occurrence polygons may encompass some unsuitable habitat in some instances in order to avoid heavy data processing associated with clipping out habitats that are readily assessed as unsuitable by the data user (e.g., a point buffer of a terrestrial species may overlap into a portion of a lake that is obviously inappropriate habitat for the species). Animal SO's are only created for Species of Concern and Special Status Species (e.g., Bald Eagle).

Other Occurrence Polygons

These include significant biological features not included in the above categories, such as Important Animal Habitats like bird rookeries and bat roosts, and peatlands or other wetland and riparian communities that support diverse plant and animal communities.

Geographic Range Polygons

Geographic range polygons are still under development for most plant and invertebrate species. Native year-round, summer, winter, migratory and historic geographic range polygons as well as polygons for introduced



populations have been defined for most vertebrate animal species for which there are enough observations, surveys, and knowledge of appropriate seasonal habitat use to define them (see examples to left). These native or introduced range polygons bound the extent of known or likely occupied habitats for non-migratory and relative sedentary species and the regular extent of known or likely occupied habitats for migratory and long-distance dispersing species; polygons may include unsuitable intervening habitats. For most species, a single polygon can represent the year-round or seasonal range, but breeding ranges of some colonial nesting water birds and some introduced species are represented more patchily when supported by data. Some ranges are mapped more broadly than actual distributions in order to be visible on statewide maps (e.g., fish).

Predicted Suitable Habitat Models

Predicted habitat suitability models have been created for plant and animal Species of Concern and are undergoing development for non-Species of Concern. For species for which models have been completed, the environmental summary report includes simple rule-based associations with streams for aquatic species and seasonal habitats for game species as well as mathematically complex Maximum Entropy models (Phillips et al. 2006, *Ecological Modeling* 190:231-259) constructed from a variety of statewide biotic and abiotic layers and presence only data for individual species for most terrestrial species. For the Maximum Entropy models, we reclassified 90 x 90-meter continuous model output into suitability classes (unsuitable, low, moderate, and optimal) then aggregated that into the one square mile hexagons used in the environmental summary report; this is the finest spatial scale we suggest using this information in management decisions and survey planning. Full model write ups for individual species that discuss model goals, inputs, outputs, and evaluation in much greater detail are posted on the MTNHP's [Predicted Suitable Habitat Models](#) webpage. Evaluations of predictive accuracy and specific limitations are included with the metadata for models of individual species. **Model outputs should not be used in place of on-the-ground surveys for species. Instead model outputs should be used in conjunction with habitat evaluations to determine the need for on-the-ground surveys for species.** We suggest that the percentage of predicted optimal and moderate suitable habitat within the report area be used in conjunction with geographic range polygons and the percentage of commonly associated habitats to generate lists of potential species that may occupy broader landscapes for the purposes of landscape-level planning.

Associated Habitats

Within the boundary of the intersected hexagons, we provide the approximate percentage of commonly or occasionally associated habitat for vertebrate animal species that regularly breed, overwinter, or migrate through the state; a detailed list of commonly and occasionally associated habitats is provided in individual species accounts in the [Montana Field Guide](#). We assigned common or occasional use of each of the ecological

systems mapped in Montana by: (1) using personal knowledge and reviewing literature that summarizes the breeding, overwintering, or migratory habitat requirements of each species; (2) evaluating structural characteristics and distribution of each ecological system relative to the species' range and habitat requirements; (3) examining the observation records for each species in the state-wide point observation database associated with each ecological system; and (4) calculating the percentage of observations associated with each ecological system relative to the percent of Montana covered by each ecological system to get a measure of numbers of observations versus availability of habitat. Species that breed in Montana were only evaluated for breeding habitat use, species that only overwinter in Montana were only evaluated for overwintering habitat use, and species that only migrate through Montana were only evaluated for migratory habitat use. In general, species were listed as associated with an ecological system if structural characteristics of used habitat documented in the literature were present in the ecological system or large numbers of point observations were associated with the ecological system. However, species were not listed as associated with an ecological system if there was no support in the literature for use of structural characteristics in an ecological system, even if point observations were associated with that system. Common versus occasional association with an ecological system was assigned based on the degree to which the structural characteristics of an ecological system matched the preferred structural habitat characteristics for each species as represented in the scientific literature. The percentage of observations associated with each ecological system relative to the percent of Montana covered by each ecological system was also used to guide assignment of common versus occasional association.

We suggest that the percentage of commonly associated habitat within the report area be used in conjunction with geographic range polygons and the percentage of predicted optimal and moderate suitable habitat from predictive models to generate lists of potential species that may occupy broader landscapes for the purposes of landscape-level planning. Users of this information should be aware that land cover mapping accuracy is particularly problematic when the systems occur as small patches or where the land cover types have been altered over the past decade. Thus, particular caution should be used when using the associations in assessments of smaller areas (e.g., evaluations of public land survey sections).

Introduction to Land Cover

Land Use/Land Cover is one of 15 [Montana Spatial Data Infrastructure](#) framework layers considered vital for making statewide maps of Montana and understanding its geography. The layer records all Montana natural vegetation, land cover and land use, classified from satellite and aerial imagery, mapped at a scale of 1:100,000, and interpreted with supporting ground-level data. The baseline map is adapted from the Northwest ReGAP (NWGAP) project land cover classification, which used 30m resolution multi-spectral Landsat imagery acquired between 1999 and 2001. Vegetation classes were drawn from the Ecological System Classification developed by NatureServe (Comer et al. 2003). The land cover classes were developed by Anderson et al. (1976). The NWGAP effort encompasses 12 map zones. Montana overlaps seven of these zones. The two NWGAP teams responsible for the initial land cover mapping effort in Montana were Sanborn and NWGAP at the University of Idaho. Both Sanborn and NWGAP employed a similar modeling approach in which Classification and Regression Tree (CART) models were applied to Landsat ETM+ scenes. The Spatial Analysis Lab within the Montana Natural Heritage Program was responsible for developing a seamless Montana land cover map with a consistent statewide legend from these two separate products. Additionally, the Montana land cover layer incorporates several other land cover and land use products (e.g., MSDI Structures and Transportation themes and the Montana Department of Revenue Final Land Unit classification) and reclassifications based on plot-level data and the latest NAIP imagery to improve accuracy and enhance the usability of the theme. Updates are done as partner support and funding allow, or when other MSDI datasets can be incorporated. Recent updates include fire perimeters and agricultural land use (annually), energy developments such as wind, oil and gas installations (2014), roads, structures and other impervious surfaces (various years): and local updates/improvements to specific ecological systems (e.g., central Montana grassland and sagebrush ecosystems). Current and previous versions of the Land Use/Land Cover layer with full metadata are available for download at the Montana State Library's [Geographic Information Clearinghouse](#)

Within the report area you have requested, land cover is summarized by acres of Level 1, Level 2, and Level 3 Ecological Systems.

Literature Cited

- Anderson, J.R. E.E. Hardy, J.T. Roach, and R.E. Witmer. 1976. A land use and land cover classification system for use with remote sensor data. U.S. Geological Survey Professional Paper 964.
- Comer, P., D. Faber-Langendoen, R. Evans, S. Gawler, C. Josse, G. Kittel, S. Menard, M. Pyne, M. Reid, K. Schulz, K. Snow, and J. Teague. 2003. Ecological systems of the United States: A working classification of U.S. terrestrial systems. NatureServe, Arlington, VA.

Introduction to Wetland and Riparian

Within the report area you have requested, wetland and riparian mapping is summarized by acres of each classification present. Summaries are only provided for modern MTNHP wetland and riparian mapping and not for outdated (NWI Legacy) or incomplete (NWI Scalable) mapping efforts; [described here](#). MTNHP has made all three of these datasets and associated metadata available for separate download on the [Montana Wetland and Riparian Framework](#) web page.

Wetland and Riparian mapping is one of 15 [Montana Spatial Data Infrastructure](#) framework layers considered vital for making statewide maps of Montana and understanding its geography. The wetland and riparian framework layer consists of spatial data representing the extent, type, and approximate location of wetlands, riparian areas, and deep water habitats in Montana.

Wetland and riparian mapping is completed through photointerpretation of 1-m resolution color infrared aerial imagery acquired from 2005 or later. A coding convention using letters and numbers is assigned to each mapped wetland. These letters and numbers describe the broad landscape context of the wetland, its vegetation type, its water regime, and the kind of alterations that may have occurred. Ancillary data layers such as topographic maps, digital elevation models, soils data, and other aerial imagery sources are also used to improve mapping accuracy. Wetland mapping follows the federal Wetland Mapping Standard and classifies wetlands according to the Cowardin classification system of the National Wetlands Inventory (NWI) (Cowardin et al. 1979, FGDC Wetlands Subcommittee 2013). Federal, State, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands differently than the NWI. Similar coding, based on U.S. Fish and Wildlife Service conventions, is applied to riparian areas (U.S. Fish and Wildlife Service 2009). These are mapped areas where vegetation composition and growth is influenced by nearby water bodies, but where soils, plant communities, and hydrology do not display true wetland characteristics. **These data are intended for use at a scale of 1:12,000 or smaller. Mapped wetland and riparian areas do not represent precise boundaries and digital wetland data cannot substitute for an on-site determination of jurisdictional wetlands.**

See a detailed overview, with examples, of both [wetland and riparian classification systems and associated codes](#)

Literature Cited

- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, FWS/OBS-79/31. Washington, D.C. 103pp.
- Federal Geographic Data Committee. 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, D.C.
- U.S. Fish and Wildlife Services. 2009. A system for mapping riparian areas in the western United States. Division of Habitat and Resource Conservation, Branch of Resource and Mapping Support, Arlington, Virginia.

Introduction to Land Management

Within the report area you have requested, land management information is summarized by acres of federal, state, and local government lands, tribal reservation boundaries, private conservation lands, and federal, state, local, and private conservation easements. Acreage for “Owned”, “Tribal”, or “Easement” categories represents non-overlapping areas that may be totaled. However, “Other Boundaries” represents managed areas such as National Forest boundaries containing private inholdings and other mixed ownership which may cause boundaries to overlap (e.g. a wilderness area within a forest). Therefore, acreages may not total in a straight-forward manner.

Because information on land stewardship is critical to effective land management, the Montana Natural Heritage Program (MTNHP) began compiling ownership and management data in 1997. The goal of the Montana Land Management Database is to manage a single, statewide digital data set that incorporates information from both public and private entities. The database assembles information on public lands, private conservation lands, and conservation easements held by state and federal agencies and land trusts and is updated on a regular basis. Since 2011, the Information Management group in the Montana State Library’s Digital Library Division has led the Montana Land Management Database in partnership with the MTNHP.

Public and private conservation land polygons are attributed with the name of the entity that owns it. The data are derived from the statewide [Montana Cadastral Parcel layer](#). Conservation easement data shows land parcels on which a public agency or qualified land trust has placed a conservation easement in cooperation with the land owner. The dataset contains no information about ownership or status of the mineral estate. For questions about the dataset or to report errors, please contact the Montana Natural Heritage Program at (406) 444-5363 or mtnhp@mt.gov. You can download various components of the Land Management Database and view associated metadata at the Montana State Library’s [GIS Data List](#) at the following links:

[Public Lands](#)

[Conservation Easements](#)

[Private Conservation Lands](#)

[Managed Areas](#)

Map features in the Montana Land Management Database or summaries provided in this report are not intended as a legal depiction of public or private surface land ownership boundaries and should not be used in place of a survey conducted by a licensed land surveyor. Similarly, map features do not imply public access to any lands. The Montana Natural Heritage Program makes no representations or warranties whatsoever with respect to the accuracy or completeness of this data and assumes no responsibility for the suitability of the data for a particular purpose. The Montana Natural Heritage Program will not be liable for any damages incurred as a result of errors displayed here. Consumers of this information should review or consult the primary data and information sources to ascertain the viability of the information for their purposes.

Introduction to Invasive and Pest Species

Within the report area you have requested, separate summaries are provided for: Aquatic Invasive Species, Noxious Weeds, Agricultural Pests, Forest Pests, and Biocontrol species that have been documented or potentially occur there based on the predicted suitability of habitat. Definitions for each of these invasive and pest species categories can be found on our [Species Status Codes](#) page.

Each of these summaries provides the following information when present for a species: (1) the number of observations of each species; (2) the geographic range polygons for each species, if developed, that the report area overlaps; (3) predicted relative habitat suitability classes that are present if a predicted suitable habitat model has been created; (4) the percent of the report area that is mapped as commonly associated or occasionally associated habitat as listed for each species in the [Montana Field Guide](#); and (5) links to species accounts in the [Montana Field Guide](#). Details on each of these information categories are included under relevant section headers under the Introduction to Native Species above or are defined on our [Species Status Codes](#) page. In presenting this information, the Montana Natural Heritage Program (MTNHP) is working towards assisting the user with rapidly determining what invasive and pest species have been documented and what species are potentially present in the report area. We remind users that this information is likely incomplete as surveys to document introduced species are lacking in many areas of the state, information on introduced species has only been tracked relatively recently, the MTNHP's staff and resources are limited, and information is constantly being added and updated in our databases. **Thus, field verification by professional biologists of the absence or presence of species will always be an important obligation of users of our data.**

If you are aware of observation or survey datasets for invasive or pest species that the MTNHP is missing, please report them to the Program Coordinator bmaxell@mt.gov Program Botanist apipp@mt.gov or Senior Zoologist dbachen@mt.gov. If you have observations that you would like to contribute, you can submit animal observations using our online data entry system at mtnhp.org/AddObs or via Excel spreadsheets posted at mtnhp.org/observations.asp

Additional Information Resources

[MTNHP Staff Contact Information](#)

[Montana Field Guide](#)

[MTNHP Species of Concern Report - Animals and Plants](#)

[MTNHP Species Status Codes - Explanation](#)

[MTNHP Predicted Suitable Habitat Models](#) (for select Animals and Plants)

[MTNHP Request Information page](#)

[Montana Cadastral](#)

[Montana Code Annotated](#)

[Montana Fisheries Information System](#)

[Montana Fish, Wildlife, and Parks Subdivision Recommendations](#)

[Montana GIS Data Layers](#)

[Montana GIS Data Bundler](#)

[Montana Greater Sage-Grouse Project Submittal Site](#)

[Montana Ground Water Information Center](#)

[Montana Index of Environmental Permits, 21st Edition \(2018\)](#)

[Montana Environmental Policy Act \(MEPA\)](#)

[Montana Environmental Policy Act Analysis Resource List](#)

[Laws, Treaties, Regulations, and Agreements on Animals and Plants](#)

[Montana Spatial Data Infrastructure Layers](#)

[Montana State Historic Preservation Office Review and Compliance](#)

[Montana Stream Permitting: a guide for conservation district supervisors and others](#)

[Montana Water Information System](#)

[Montana Web Map Services](#)

[National Environmental Policy Act](#)

[Penalties for Misuse of Fish and Wildlife Location Data](#) (MCA 87-6-222)

[U.S. Fish and Wildlife Service Information for Planning and Consultation](#) (Section 7 Consultation)

[Web Soil Survey Tool](#)

Attachment 1: Representative Project Area Photographs



Date & Time: Wed, Jul 28, 2021, 11:54:36 MDT
Position: +047.020313° / -114.657197° (±15.8ft)
Altitude: 2844ft (±10.7ft)
Datum: WGS-84
Azimuth/Bearing: 217° S37W 3858mils True (±14°)
Elevation Angle: -05.3°
Horizon Angle: -02.7°
Zoom: 1.0X
DH102
MDT I-90 Bridges



Figure 1: Clark Fork River Bridge facing south.



Figure 1: Underside of Clark Fork River Bridge facing southeast.

Date & Time: Wed, Jul 28, 2021, 13:38:09 MDT
Position: +047.006453° / -114.578335° (±14.1ft)
Altitude: 2987ft (±12.9ft)
Datum: WGS-84
Azimuth/Bearing: 193° S13W 3431mils True (±10°)
Elevation Angle: -06.1°
Horizon Angle: +00.2°
Zoom: 1.0X
DH111
MDT I-90 Bridges



Figure 2: Cyr Bridge facing south.



Figure 3: Cyr Bridge facing west.



Figure 4: Underside of Cyr Bridge facing east.