Environmental Assessment Checklist

Project Name: Antice Flats Forest Management Project Proposed Implementation Date: June 2025 Proponent: Stillwater Unit, Northwest Land Office, Montana DNRC County: Flathead

Type and Purpose of Action

Description of Proposed Action:

The Stillwater Unit of the Montana Department of Natural Resources and Conservation (DNRC) is proposing the Antice Flats Forest Management Project. The project is located approximately 10 miles northeast of Olney, Montana in Flathead County (refer to Attachments vicinity map A-1 and project map A-2) and includes the following sections: Sections 3-5, 9-11, 13-16, 22-24 of T33N R23W and Sections 32-34 of T34N R23W.

Beneficiary	Legal Description	Total Acres	Treated Acres
Common Schools	Sections 3-5, 9-11, 13-16, 22-24 T33N R23W Sections 32-34 T34N R23W	5,786	677
Public Buildings			
MSU 2 nd Grant			
MSU Morrill			
Eastern College-MSU/Western College-U of M			
Montana Tech			
University of Montana			
School for the Deaf and Blind			
Pine Hills School			
Veterans Home			
Public Land Trust			
Acquired Land			

Table 1: Trust Beneficiaries and Treated Acres

Objectives of the project include:

- Contribute approximately 3 to 5 million board feet (MMbf) DNRC's Sustainable Yield timber harvest volume target. DNRC is required by state law (Montana Code (MC) 77-5-221 through 223) to sell approximately 60 MMbf of timber annually and continue to produce revenue over time.
- Generate revenue for the Common School Trust.

- Improve the long-term productivity of timber stands and reduce the incidence and risk of insect and disease damage through silvicultural treatments designed to reduce stand density and improve forest health and regenerated stands displaying poor vigor and growth. Further, silvicultural treatments will move target stands toward Desired Future Conditions (DFC) in terms of species composition in order to maximize future revenue and promote stand resiliency.
- Reduce the risk and severity of wildland fire by reducing fuel loading and stand density.
- Continue to apply silvicultural prescriptions in the Antice Flats Project Area to promote biodiversity as called for in the State Forest Land Management Plan (1996).
- Apply Best Management Practices (BMPs) to meet design criteria that are necessary to promote long-term water quality during logging and road improvement operations.
- Identify areas of unauthorized off-road use and opportunities to improve long term transportation systems for forest management, fires suppression activities, and administrative uses.

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	# Acres
Clearcut	330
Seed Tree	0
Shelterwood	0
Selection	0
Old Growth Maintenance/Restoration	0
Commercial Thinning	347
Salvage	0
Total Treatment Acres	677
Proposed Forest Improvement Treatment	# Acres
Pre-commercial Thinning	0
Site preparation/scarification	330
Planting	330
Proposed Road Activities	# Miles
New permanent road construction	0
New temporary road construction	0
Road maintenance	25
Road reconstruction	0
Road abandoned	0
Road reclaimed	0
Other Activities	
High Hazard Fuel Reduction Piling	72 acres

Table 2: Proposed forest management activities.

Duration of Activities:	5 years
Implementation Period:	June 16-March 31 (Annually)

The lands involved in this proposed project are held in trust by the State of Montana. (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X, Section 11). The Board of Land Commissioners and the DNRC are required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for the beneficiary institutions (Section 77-1-202, MCA).

The DNRC would manage lands involved in this project in accordance with:

- The State Forest Land Management Plan (DNRC 1996),
- Administrative Rules for Forest Management (ARM 36.11.401 through 471),
- The Montana DNRC Forested State Trust Lands Habitat Conservation Plan (HCP) (DNRC 2010) and all other applicable state and federal laws.

Project Development

SCOPING:

- DATE:
 - July 19, 2024
- PUBLIC SCOPED:
 - The scoping notice was posted on the DNRC Website: <u>https://dnrc.mt.gov/News/scoping-notices</u>
 - In July and August 2024 DNRC solicited public participation for 30 days on the Antice Flats Forest Management Project. The Initial Proposal with maps was sent to agencies, individuals, and licensees that have expressed interest in DNRC's management activities.
- AGENCIES SCOPED:
 - MT Fish, Wildlife, and Parks
 - USFS Flathead National Forest
 - All Montana Tribal Organizations
- COMMENTS RECEIVED:
 - One comment was received from MT Fish, Wildlife, and Parks regarding about the project area supporting a diversity of wildlife species with specific comments moose habitat. While the Antice Flats Forest Management Project is expected to improve moose forage, the comment letter asked that consideration be given to retaining patches of dense canopy for summertime thermal relief as well as retaining visual screening along open roadways/corridors.
 - These comments/issues will be addressed at the project level incorporating our HCP to provide visual screening and retain sufficient sub merchantable timber to provide thermal cover.

Internal and external issues, as well as resource concerns, were considered by the Interdisciplinary Team (ID Team) and project Decisionmaker (Stillwater Unit Manager). These issues and concerns were incorporated into the project planning and design phases of the project and would be implemented in associated actions and contracts. The ID Team developed an action alternative within the framework of the State Forest Land Management Plan (SFLMP), HCP, and DNRC Forest Management Rules. One action alternative was developed because various issues and concerns of the ID Team can be addressed with adequate planning and associated mitigations.

Interdisciplinary Team (ID):

- Dave Ring-Stillwater Unit Manager-Project Decisionmaker
- Josh Harris-Hydrologist
- Justin Cooper-Wildlife Biologist
- Patrick Rennie-Archeologist
- Mike Anderson-Fisheries Biologist
- Karl Crittenden-Forester

Project Development:

Stand Prioritization

The following types of forest conditions focused foresters on considering treatments to improve stand health and stocking densities. These include:

- Stands adequately regenerated with desired species since last harvest entry.
- Overstocked stands with poor tree vigor, health, and growth.
- Decreasing competition through commercial thinning providing sufficient conditions and resources for optimal growth for residual stands.

• Transportation Development

This project would identify opportunities to update transportation infrastructure by assessing long-term forest management, reducing unauthorized off-road use/user-created trails, meeting safety standards / BMPs, and improving access for fire suppression activities Influencing factors when considering proposed roadwork were:

- Planning for future uses and forest management.
- Assessment of existing road locations, conditions, and standards. Roads were inspected for BMP effectiveness, and if the existing road standard is suitable for current and future uses.
- The ID Team utilized rules associated with the Road Management (ARM 36.11.421).

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS

NEEDED: (Conservation Easements, Army Corps of Engineers, road use permits, etc.)

- United States Fish & Wildlife Service- DNRC is managing the habitats of threatened and endangered species on this project by implementing the Montana DNRC Forested Trust Lands HCP and the associated Incidental Take Permit that was issued by the United States Fish & Wildlife Service (USFWS) in February of 2012 under Section 10 of the Endangered Species Act. The HCP identifies specific conservation strategies for managing the habitats of grizzly bear, Canada lynx, and three fish species: bull trout, westslope cutthroat trout, and Columbia redband trout. This project complies with the HCP. The HCP can be found at https://dnrc.mt.gov/TrustLand/about/planning-and-reports.
- Montana Department of Environmental Quality (DEQ)- DNRC is classified as a major open burner by DEQ and is issued a permit from DEQ to conduct burning activities on state lands managed by DNRC. As a major open-burning permit holder, DNRC agrees to comply with the limitations and conditions of the permit.

A Short-term Exemption from Montana's Surface Water Quality Standards (318 Authorization) may also be required from DEQ if activities such as replacing a bridge on a stream would introduce sediment above natural levels into streams.

• Montana/Idaho Airshed Group- The DNRC is a member of the Montana/Idaho Airshed Group which was formed to minimize or prevent smoke impacts while using fire to accomplish land management objectives

and/or fuel hazard reduction (Montana/Idaho Airshed Group 2010). As a member, DNRC must submit a list of planned burns to the Airshed Group's Smoke Monitoring Unit describing the type of burn to be conducted, the size of the burn in acres, the estimated fuel loading in tons/acre, and the location and elevation of each burn site. The Smoke Monitoring Unit provides timely restriction messages by airshed. DNRC is required to abide by those restrictions and burn only when granted approval by the Smoke Monitoring Unit when forecasted conditions are conducive to good smoke dispersion.

- Montana Department of Fish, Wildlife and Parks (DFWP)- A Stream Protection Act Permit (124 Permit) is required from DFWP for activities that may affect the natural shape and form of a stream's channel, banks, or tributaries. Such activities include:
 - Replacing or repairing culverts.
 - Cleaning the outflow or inlet of an existing culvert.
 - Installation of temporary bridge.

ALTERNATIVES CONSIDERED:

<u>No-Action Alternative</u>: Under this alternative no timber would be harvested, and no revenue would be generated from the Project Area at this time. Salvage logging, firewood gathering, recreational use, fire suppression, noxious weed management, additional requests for permits and easements, and ongoing management requests may still occur. Natural events such as plant succession, tree mortality due to insects and disease, windthrow, down fuel accumulation, in-growth of ladder fuels, and wildfires may occur.

Action Alternative: Under this alternative a commercial harvest would remove approximately

3-5 MMbf of timber. Timber would be harvested using ground-based (tractor) methods on 677 acres. Specific harvest unit data are provided in *Attachment B-Antice Flats Prescription Tables*. Using this table in conjunction with *Attachment A. Page 2-Antice Flats Forest Management Project Area Map* will provide additional detail for this proposed project.

Proposed silvicultural prescriptions applied under this alternative are as follows:

- New stands of healthy desirable tree species would be regenerated on 330 acres through the implementation of a clear-cutting silvicultural prescription.
- Commercial thinning treatments would be implemented on 347 acres. Trees would be spaced 20' 30' feet apart. This would reduce stand densities and promote existing tree growth.

No old growth stands would be treated during the Antice Flats project.

Post-harvest treatments applied under this alternative to ensure successful regeneration of units as well as high hazard fuels reduction along existing open roads are as follows:

- Mechanical piling and scarification would occur on up to 330 acres to provide sites for natural and planted trees to regenerate.
- Mechanical high hazard fuels reduction would occur on up to 20 acres along existing open roads adjoining harvest units to mitigate high wildfire hazard and create shaded-fuel-breaks along primary road systems. This would be accomplished through but not limited to mastication, hand-thinning & piling, and mechanical piling.

Road maintenance and BMP improvements would be performed on approximately 25 miles of existing roads. This would ensure BMP effectiveness, meet standard safety requirements, ensure wildlife/resource protection, and improve access for fire suppression activities.

Noxious weed populations would be sprayed with herbicide and disturbed road surfaces would be grass seeded to ameliorate further establishment of noxious weeds and limit soil displacement and erosion. Also, road maintenance and Best Management Practices (BMPs) implementation would further limit erosion and potential deleterious effects of increased traffic due to forest management activities.

Impacts on the Physical Environment

VEGETATION:

Vegetation Existing Conditions: Past activities in the Project Area include harvests as early as 1922, with a steady rotation of harvests occurring in the 1950s, 1960s, and 1970s. Recently, the Chicken Antice (2009), Southeast Stryker Ridge (2010), Antice Knobs 2 (2017),), and Swift Divide (2019) forest management projects have taken place adjacent to the proposed Antice Flats Project Area. Treatment objectives in these areas are similar and show expected regeneration, leave tree spacing, and post-harvest conditions.

Many of the timber stands in the proposed Antice Flats Project Area were regenerated in 1971 and 1972, The intention of these treatments was to retain western larch, Douglas-fir, and western white pine as dominant seed sources. Many of these stands were subsequently pre-commercially thinned in the early 90s. Past management activities have prepared stands for present proposed management. Areas that were not effectively pre-commercially thinned show negative forest conditions; including increased understory competition from shade tolerant species, a heavy brush component, decreased annual growth, and increased fuel loading.

Harvest Units 1 and 2 of the proposed Antice Flats project can be characterized as a western larch and Douglas-fir overstory with a dense understory of Engelmann spruce, grand fir, and subalpine fir. There are few, scattered western larch and Douglas-fir in the understory. Harvest Units 3-13 generally show the positive effects of the precommercial thinning of the early 90s with many of the residual western larch and Douglas-fir seed trees present and a well-developed understory of Engelmann spruce, grand fir, western larch, Douglas-fir, and grand fir. The density of the understory and brush component varies among these units.

Harvest Unit	Habitat Group	Fire Regime	Current Cover Type	Age Class (years)	DFC	RX	Acres
1	Cool and moist (westside)	Mixed	Subalpine Fir	40-99	Western White Pine	Clear Cutting	319
2	Cool and moist (westside)	Mixed	Mixed Conifer	40-99	Western White Pine	Clear Cutting	11
3	Cool and moist (westside)	Mixed	Mixed Conifer	40-99	Western Larch/Douglas Fir	Commercial Thinning	144
4	Cool and moist (westside)	Mixed	Mixed Conifer	40-99	Western White Pine	Commercial Thinning	18
5	Cool and moist (westside)	Mixed	Western Larch/Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	18
6	Cool and moist (westside)	Mixed	Mixed Conifer	40-99	Western Larch/Douglas Fir	Commercial Thinning	12
7	Cool and moist (westside)	Mixed	Mixed Conifer	40-99	Western Larch/Douglas Fir	Commercial Thinning	4
8	Cool and moist (westside)	Mixed	Western Larch/Douglas Fir	40-99	Western Larch/Douglas Fir	Commercial Thinning	38
9	Warm and moist (westside)	Mixed	Mixed Conifer	40-99	Western Larch/Douglas Fir	Commercial Thinning	16
10	Cool and moist (westside)	Mixed	Mixed Conifer	40-99	Western Larch/Douglas Fir	Commercial Thinning	21
11	Cool and moist (westside)	Mixed	Mixed Conifer	40-99	Western Larch/Douglas Fir	Commercial Thinning	14
12	Cool and moist (westside)	Mixed	Mixed Conifer	40-99	Western Larch/Douglas Fir	Commercial Thinning	32
13	Cool and moist (westside)	Mixed	Mixed Conifer	40-99	Western Larch/Douglas Fir	Commercial Thinning	28

Table 3: Existing Conditions in Proposed Units

<u>Current Cover-Type/DFCs</u>: Silvicultural treatments in proposed units would focus on establishing, maintaining, or increasing the presence and growth mostly of seral species in accordance with desired future conditions. This would be obtained through regeneration harvests (clear-cutting) and commercial thinning prescriptions.

<u>Old Growth:</u> Utilizing Stand Level Inventory (SLI) data, walkthroughs, and old growth verification cruises there are approximately 1,226 acres of old growth within the Project Area. No old growth removal would occur with this project and no old growth would be expected to be impacted.

Fire Hazard/Fuels: Dense multi-storied stands exist within the Project Area which contain heavy ladder fuels due to the existing blowdown and understory ingrowth. These ladder fuels could increase fire intensity and activity, potentially allowing a wildfire to spread into the overstory canopy. Because of the heavy fuel loading that exists on the landscape in the form of blowdown, ladder fuels, and dense pockets of timber, the potential for stand-replacing wildfire exists but, under the action alternative, would be reduced and allow for success from aerial and ground firefighting efforts. Additionally, this project would decrease fuel loading along existing open roads through the establishment of shaded fuel breaks and mechanical high hazard piling.

Insects and Diseases: In the Project Area root and butt rot (*Phaeolus schwinitzii*), indian paint (*Echinodontium tinctorium*)), pini (*Phellinus pini*)), spruce beetle (*Dendroctonus rufipennis*), fir engraver (*Scolytus ventralis*), white pine blister rust (*Cronartium ribicola*) and tomentosus root disease (*Onnia tomentosa*) have been observed.

<u>Sensitive/Rare Plants</u>: The Montana Natural Heritage Program was queried for potential species of concern and species of concern of all vascular plants species in January 2025. Within the Project Area Big-leaf Sedge (*Carex amplifolia*) was identified.

Noxious Weeds: Spotted Knapweed (*Centaurea stoebe*), St. Johnswort (*Hypericum perforatum*), Oxeye Daisy (*Leucanthemum vulgare*), Meadow Hawkweed (*Hieracium caespitosum*) and Orange Hawkweed (*Hieracium aurantiacum*) are found in and around the proposed Project Area. Current occurrences are found mainly along existing roads, dispersed recreation sites and some old landings and skid trails. Incursions of noxious weeds into most forested sites have not been observed.

						In	npact						Can Impact	Comment Number
Vegetation		D	irect			Sec	ondary			Cum	ulative		Be	
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High	wiitigated?	
No-Action														
Current Cover/DFCs	Х				Х				Χ					
Age Class	Χ				Х				Χ					
Old Growth	Х				Χ				Χ					
Fire/Fuels	Х				Х				Χ					
Insects/Disease	Х				Х				Χ					
Rare Plants	Х				Х				Χ					
Noxious Weeds		Χ				X				X				
Action														
Current Cover/DFCs		X				X				Χ			No	V-1
Age Class		Χ				X				X			No	V-1
Old Growth	Х				Х				Χ					
Fire/Fuels		Χ				X				X			No	V-3
Insects/Disease		Χ				X				X			No	V-4
Rare Plants	Х				Х				Χ					
Noxious Weeds		X				X				X			Yes	V-5

Comments:

V-1: The Action Alternative would harvest 3-5 MMbf over 677 acres of sawtimber (see *Attachment B* – *Prescription Table*). The silvicultural prescriptions implemented within units 1 and 2 of the stands identified for treatment would maintain or transition current cover types to the desired future conditions (*ARM 36.11.405*) by reducing lodgepole pine, subalpine fir, and mixed conifer cover types and transitioning them into 330 acres of western white pine, western larch, and Douglas-fir. Approximately 330 acres would be converted from the 40-99-year age class to the 0 - 39-year age class through implementation of clear-cutting treatments. Mechanical scarification would subsequently occur on 330 acres following harvest to create seedbeds that would be receptive to natural regeneration and planted seedling. This would allow the vegetative community to grow into a desirable species mix that would be productive into the future. Additionally, 347 acres of the proposed Project Area would be commercially thinned, resulting in no net change in the current cover type or current age class.

V-3: Though the risk of wildfire would still exist post-harvest, silvicultural treatments within proposed units would assist in moderating fire intensity should a wildfire occur. Treatments applied would reduce the vertical and horizontal continuity of fuel loadings. Shaded-fuel-breaks would be developed in treatment units adjacent to existing open roads focusing on the removal of understory ladder-fuels and increasing the crown separation of residual trees to mitigate crown fire potential. These treatments would allow fire suppression efforts to be more successful by moderating fire rate of spread, fire intensity. Additionally, mechanical high-hazard reduction piling would occur in treatment units along existing open roads, thereby decreasing fuel continuity and loading.

V-4: The proposed project would increase the resiliency of affected stands by decreasing stocking and competition and thereby increasing tree health and vigor.

V-5: Mitigation measures for noxious weed control include washing equipment before entering the site, sowing grass seed on roads after road maintenance and harvesting (*ARM 36. 11. 445*) and applying herbicide on spots of weed outbreaks along roadways including areas behind road closures. These measures would minimize the spread and continued prevalence of noxious weeds in the Project Area.

SOIL DISTURBANCE AND PRODUCTIVITY:

Soil Disturbance and Productivity Existing Conditions:

The proposed project area is in the Stillwater State Forest, part of the Northern Rocky Mountain Physiographic Province (Fennemen, 1928). The area is predominantly underlain by the metamorphosed Proterozoic sedimentary rock of the Ravalli group and lower belt series (Konizeski et al., 1968), typically defined by gray to greenish-gray argillite and light-gray quartzite. Volcanic ash surface layers are common above 5,000 feet, especially on northern aspects. The area's soil is predominantly designated as glacial till and alluvium, found along creek bottoms with mountainous land and glacial till apparent throughout the site. The highest risks to soils are compaction, erosion, and displacement, considered moderate, high, and severe, respectively, mostly due to low bearing strength and minor traces of clay (NRCS, 2024).

Approximately 24 miles of low to moderate-standard existing roads within and leading to the proposed project area. Previous timber sales in the proposed project area include Mcstryker (2022), Upper Swede II (2022), Upper Swede (2020), Antice Knobs 2 (2017), Antice South (2016), Upper Whitefish (2012), Swedish Chicken (2011), SE Stryker Ridge (2010), Chicken Antice (2009), and Upper Stryker (1997). Using bare earth lidar, less than 5 percent of the project area shows impacts through skid trails and landings. On the ground, these impacts have begun ameliorating and, with vegetation, are difficult to discern. No erosional features were identified in the field. The harvest intensity is considered high due to 4.5 MMbf of harvest from 677 acres. Site preparation will include 330 acres of scarification and planting.

<u>No-Action Alternative</u>: No direct or indirect impacts would occur to soils resources beyond those described in Soils Existing Conditions. Cumulative effects (other related past and present factors; other future, related actions; and any impacts described in Soils Existing Conditions would continue to occur.

Soil Disturbance and Productivity	Imp Dire	oact ect			Secondary Cumulative						Can Impact Be	Comment Number		
	N o	Low	Mod	High	N o	Low	Mod	High	N o	Low	Mod	High	Mitigated?	
No-Action														

	Imp	pact												
Soil Disturbance and Productivity	Dir	Direct			Sec	Secondary				mulativ	e		Can Impact Be	Comment Number
Troutenting	N o	Low	Mod	High	N o	Low	Mod	High	N o	Low	Mod	High	Mitigated?	
Physical Disturbance														
(Compaction and	Х				Х				Х					
Displacement)														
Erosion	X				X				X					
Nutrient Cycling	X				X				Χ					
Slope Stability	X				Χ				Χ					
Soil Productivity	Χ				Χ				Χ					
Action														
Physical Disturbance														
(Compaction and		Χ				Χ				Χ			Yes	S-1
Displacement)														
Erosion		X				Χ				X			Yes	S-2
Nutrient Cycling		Χ				Χ				Χ			Yes	S-3
Slope Stability	Χ				Χ				Χ					
Soil Productivity		X			l	Χ			l	X			Yes	S-4

Comments:

- S-1: Based on DNRC soil monitoring on similar soils with a similar harvest intensity, approximately 15.4% of harvested area may be in an impacted condition (DNRC, 2006). This level is below the range analyzed for in the *EXPECTED FUTURE CONDITIONS* section of the *SFLMP*, and well within the 20-percent impacted area established as a level of concern in the *SFLMP (DNRC 1996)*. This level translates to a low risk of low direct, secondary and cumulative impacts to soil physical disturbance.
- S-2: Low impacts to soil erosion are possible due to exposure of bare soil during felling and yarding operations and road construction activities. Risk of erosion would be mitigated by implementing all applicable BMPs to harvesting and road building activities.
- S-3: Based on the dominant habitat types within the project area, subalpine fir/queen cup beadily (ABLA/CLUN) and western redcedar/devils club (THPL/OPIO), the optimal coarse woody debris range is between 7 and 24 tons per acre (Graham et al., 1994).
- S-4: Soil productivity would be impacted by road construction and the use of ground-based machinery to yard timber. As stated in comment S1, levels of ground disturbance are expected to be less than 15.4% with roads included, which is well below the range analyzed for in the EXPECTED FUTURE CONDITIONS section of the SFLMP, and well within the 20-percent impacted area established as a level of concern in

the SFLMP (DNRC 1996). This level translates to a low risk of low direct, secondary and cumulative impacts to soil productivity.

Soil Mitigations:

- Limit equipment operations to periods when soils are relative-ly dry (less than 20 percent), frozen, or snowcovered to minimize soil compaction and rutting and maintain drain-age features. Check soil moisture conditions prior to equipment start-up.
- The logger and sales administrator will agree to a skidding plan prior to equipment operations. Skid-trail planning will identify which main trails to use and how many additional trails are needed. Trails not complying with BMPs (i.e., trails in draw bottoms) will only be used if impacts can be adequately mitigated. Skid trails will be kept to 20 percent or less of the harvest unit acreage, have adequate drainage concurrently with operations, and will be limited to slopes of less than 45 percent unless the operation can be completed without causing excessive displacement or erosion.
- Slash will be distributed within harvest units, including large (≥3-inch diameter) and fine material (such as branches and leafy material), to maintain or achieve the 7 24 tons per acre of coarse woody material.
- Compliance with Forestry Best Management Practices (BMPs), Streamside Management Zone (SMZ) laws, Montana DNRC Forested Trust Lands HCP, and applicable DNRC Forest Management Administrative Rules.

References:

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MBMG. 2007. Geologic Map of Montana - Compact Disc: Montana Bureau of Mines and Geology: Geologic Map 62-C, 73 p., 2 sheets, scale 1:500,000. This map was digitized in 2012 as a result of a contract between the U.S. Geological Survey and the Montana Bureau of Mines and Geology.

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WATER QUALITY AND QUANTITY:

Water Quality and Quantity Existing Conditions:

The hydrologic assessment for the project area considers four distinct watersheds, delineated at the 6th-level hydrologic unit scale, as shown in Table H-1: Assessment Areas Used to Evaluate Potential Impacts to Hydrologic Resources. These watersheds vary in size, hydrological complexity, and contribution to overall water flow and resource management.

Assessment Area (6 th level)	Hydrologic Code	Watershed % Project Area	Acres Proposed Harvest	Watershed % Harvest
Antice Creek-Swift Creek	170102100503	51	294	4.3
West Fork Swift Creek	170102100501	12	339	2.6
Hemlock Creek-Swift Creek	170102100505	22	16	0.1
East Fork Swift Creek	170102100502	15	27	0.2

Table H-1: Assessment Areas Used to Evaluate Potential Impacts to Hydrologic Resources.

The watersheds share several key similarities, including high forest cover, ranging from 77% to 89%, and substantial annual precipitation, with amounts as high as 54 inches in the East Fork and West Fork Swift Creek watersheds and 40 inches in Antice Creek-Swift Creek. All feature streams supporting aquatic species contribute to the region's biodiversity. The DNRC plays a central role in their management, with ownership spanning 55% to 100% across the watersheds. The Hemlock Creek-Swift Creek and West Fork Swift Creek watersheds are also classified as A-1 water quality regions, ensuring their suitability for drinking (with treatment), recreation, aquatic life, and agricultural use (ARM 17.30.622). Most of the proposed harvest will occur in the Antice Creek – Swift Creek and West Fork Swift Creek watersheds.

Swift Creek is a perennial fish-bearing class 1 stream that meanders through the project area's eastern portion. It has a drainage area of 42 sq. miles near the project site and a mean annual flow of 69 ft³/s. Antice Creek, a tributary of Swift Creek, is a perennial fish-bearing class 1 stream that flows along the western portion of the project area. It has a drainage area of 5.4 sq miles and a mean annual flow of 3.8 ft³/s (McCarthy et al). In addition to Swift and Antice Creek, several other reaches of class 1, 2, and 3 streams were identified throughout the proposed project area. The proposed project will include up to 3 miles of temporary road, two temporary crossing structures, and approximately 18 miles of maintenance to restore and improve drainage.

	Impact													
Water Quality & Ouantity	Dire	ect			Sec	Secondary			Cumulative				Can Impact Be	Comment Number
No-Action	N o	Low	Mod	High	N o	Low	Mod	High	N o	Low	Mod	High	Mitigated?	
No-Action														
Water Quality	X				X				X					
Water Quantity	X				Х				Χ					
Action														
Water Quality		Χ				X				X			Yes	W-1
Water Quantity		Χ				Χ				Χ			Yes	W-2

Comments:

- W-1: All requirements found in ARM 36.11.301-313, and ARM 36.11.421-427 would be implemented, where applicable. In addition, all applicable forest management BMPs would be implemented. These measures would minimize any potential risk of sediment delivery to a stream or draw and leave a low risk of direct, secondary or cumulative impacts to water quality. All applicable BMPs, SMZ rules and HCP commitments would be implemented in order to minimize the risk of impacts to water quality. These measures would mitigate the potential impacts of proposed timber harvesting activities as well as the construction of approximately 3 miles of temporary roads and two crossing structures.
- **W-2:** There is a low risk of any proposed activity leading to an increase in water quantity sufficient to destabilize any streams within the project area. In concert with implementing BMPs and streamside buffers, this harvest level is not expected to have measurable effects on the timing, magnitude, or duration of peak flows to downstream receiving waters.

Water Quality & Quantity Mitigations:

- BMPs for Forestry would be implemented and monitored for effectiveness concurrent with all forest management activities.
- Implementation of Montana Administrative Rules for Forest Management and Streamside Management Zones.
- Implementing Montana DNRCs HCP commitments for Riparian Management Zones and Sediment Delivery.

References:

DEQ, 2011. Montana Average Annual Precipitation 1981-2010. Montana Dept. of Environmental Quality, Helena, MT

DNRC, 1996. Forestry Best Management Practices: State Forest Management Plan. Montana DNRC, Forest management Bureau. Missoula, MT.

McCarthy, P.M., Sando, Roy, Sando, S.K., and Dutton, D.M.,2016, Methods for estimating streamflow characteristics at ungaged sites in western Montana based on data through water year 2009: U.S. Geological Survey Scientific Investigations Report 2015–5019–G, 19 p.

FISHERIES:

The following analysis details the Fisheries Resources existing conditions and potential effects of the proposed activities included in the Antice Flats Forest Management Project. Proposed activities are found in the Type and Purpose of Action. Fisheries Assessment Areas were selected based the proposed activities and potential for those activities to impact fisheries resources in the project area. For the purposes of this analysis, potential impacts to fisheries resources are evaluated on the subwatershed level (HUC12). Assessment areas included in this analysis are;

- 1. West Fork Swift Creek (170102100501)
- 2. East Fork Swift Creek (170102100502)
- 3. Antice Creek-Swift Creek (170102100503)
- 4. Hemlock Creek-Swift Creek (170102100505)

Proposed activities potentially impacting fisheries resources include;

- 1. Upland and riparian timber harvest;
- 2. Road construction, maintenance, and use during timber management activities;
- 3. Temporary stream crossing installation on perennial streams.

Fisheries Existing Conditions: Fisheries assemblages and distribution in the project area are found in Table F– 1. Significant overlap between native and introduced species occurs in all Assessment Areas. While hybridization between Bull trout and Eastern brook trout, or Westslope cutthroat trout and Rainbow trout has not been documented in the project area, continued sympatry will likely result in some level of introgression. Additionally, competition, predation, and displacement are likely occurring throughout the project area. Based on the overlapping distribution of native and introduced species there is an existing high direct, indirect, and cumulative effect on fisheries populations due to the presence of introduced species.

West Fork Swift Creek, East Fork Swift Creek, and mainstem Swift Creek all support Bull trout, with spawning and rearing (SR) critical habitat present in West and East forks, and foraging, migrating, and overwintering

(FMO) habitat present in mainstem Swift Creek. Upper Whitefish Lake is also identified as FMO critical habitat and is connected to the population in East Fork Swift Creek. Bull trout redd counts have been conducted regularly from 1994 to present in West Fork Swift Creek and Swift Creek downstream from the confluence of the west and east forks, and irregularly in East Fork Swift Creek. Redd counts in Swift Creek and West Fork Swift Creek have averaged 5.3 (4.6–6.0; 95% C.I.) and 5.7 (4.7–6.6) redds per year (Figure F-2). The most recent redd counts in East Fork Swift Creek found 3 and 2 redds in 2021 and 2022 respectively. Spawning reaches in Swift Creek and West Fork Swift Creek are in the immediate project area and adjacent to proposed harvest units, all proposed project activities would be conducted downstream from the spawning reach on East Fork Swift Creek. Bull trout spawning and rearing habitat have been monitored in Swift Creek. West Fork Swift Creek, and East Fork Swift creek since the mid-2000's. Spawning conditions have never exceeded the threatened threshold in West Fork or East Fork Swift Creek, averaging 31.2 (30.5–31.9) and 31.0 (30.0–32.0) percent fine sediment (<6.35mm). The most recent 5 year rolling average (2018–2023 spawning classes) in West Fork Swift Creek was 30.4 (29.8–30.9), and in East Fork Swift Creek was 31.7 (31.2–32.3). One exceedance of the threatened threshold was noted for the 2001 spawning class in Swift Creek, however the highest percent fine sediment noted in the last 10 years was 32.0 percent in 2019 (Figure F-3). Rearing habitat is similarly in good condition, with substrate scores in Swift, West Fork, and East Fork Swift creeks averaging 12.1 (11.9–12.4), 11.8 (11.6–12.0), and 11.7 (11.5–11.9) respectively (Figure F-4). No substrate scores have been noted to be below the threatened threshold where early rearing is negatively impacted by instream sediment. Based on the existing condition, there is no existing impact to Bull trout spawning and rearing habitat in the project area.



Figure F-1: Fisheries resources associated with the Antice Flats Timber Management Project.

Table F-1. Fisheries population and distribution in the Antice Flats Timber Management Projects Assessment Areas.

			Stream Mile	es Occupied
Assessment Area	Origin	Species	Watershed	BT Crit. Habitat
West Fork Swift Creek	Native	Bull trout	7.8	7.8
		Westslope cutthroat trout	16.8	-
		Slimy sculpin	7.8	-
	Introduced	Rainbow trout	1.0	-
		Eastern brook trout	9.8	-
East Fork Swift Creek	Native	Bull trout	6.9	5.9
		Westslope cutthroat trout	9.8	-
		Slimy sculpin	8.8	-
		Longnose sucker	2.5	-
	Introduced	Eastern brook trout	6.1	-
Antice-Swift Creek	Native	Bull trout	3.1	3.1
		Westslope cutthroat trout	8.2	-
		Mountain whitefish	3.1	-
		Slimy sculpin	3.1	-
	Introduced	Eastern brook trout	9.9	-
Hemlock-Swift Creek	Native	Bull trout	13.0	13.3
		Westslope cutthroat trout	22.6	-
		Mountain whitefish	13.3	-
		Slimy sculpin	13.3	-
	Introduced	Rainbow trout	13.3	-
		Eastern brook trout	13.3	-

Table F-2. Road infrastructure associated with the Antice Flats Timber Management Projects Assessment Areas.

			Assessm	ient Area	
		West Fork Swift Cr.	East Fork Swift Cr.	Antice- Swift	Hemlock- Swift
Watershed Roads	Open	1.4	9.7	6.3	31.0
	Restricted	51.2	26.8	34.3	59.9
	Within 300 feet Classified Stream	23.4	13.7	14.0	29.7
	Within 300 feet Bull trout CH	5.0	6.7	1.1	3.9
	Perennial crossings	39	28	37	77
	Intermittent crossings	23	4	14	34
	Fish passage barriers	1	2	2	10
Haul Route Roads	Open	1.2	2.1	2.9	4.7
	Restricted	0.8	0.0	8.0	0.5
	Within 300 feet Classified Stream	1.2	1.3	4.0	2.9
	Within 300 feet Bull trout CH	0.6	0.0	0.9	1.9
	Perennial crossings	2	1	9	4
	Intermittent crossings	0	0	3	9
	Crossings on Bull trout CH	2	0	0	1
	Fish passage barriers	1	0	0	0
	New Perennial crossings	0	0	2	0
	New Intermittent crossings	0	0	0	0

Table F-3. Riparian buffer timber stand characteristics in the Antice Flats Timber Management Projects Assessment Areas.

			SMZ	Acres		RMZ Acres				
Assessment Area	Watershed Area	Proposed Percent Watershed Harvested	Watershed	Acres Currently in NS/SS	Watershed	Proposed Harvest	Acres Currently in NS/SS	Acres Converted to NS/SS	Post- project acres NS/SS	Post- project Percent NS/SS
West Fork Swift Creel	12,823	2.6	673	99.3	352	20.5	34.8	0.0	134	13.1
East Fork Swift Creek	11,085	0.2	560	31.6	177	0.3	11.8	0.0	43	5.8
Antice-Swift Creek	6,831	4.3	521	34.7	289	13.1	19.9	0.0	55	6.7
Hemlock-Swift Creek	18,256	0.1	1,133	41.2	751	0.0	27.9	0.0	69	3.6

Road infrastructure in the Assessment Areas are found in Table F-2. The presence of roads within 300 feet of classified streams and the presence of road-stream crossings has elevated existing sediment delivery, with the

existing road system having a low level direct, indirect, and cumulative impacts on fisheries habitat in the project area.

Riparian buffers in the project area are well-stocked, minimal riparian timber harvest has occurred during the previous 25 years, and no significant wildfire has impacted any of the Assessment Areas. Roads within riparian buffers are prevalent in the project area (Table F-2), and have likely impacted large woody debris recruitment and stream shade on a local reach level. There are existing low level direct, indirect, and cumulative effects on large woody debris and stream shade due to riparian roads, these impacts have not impacted fisheries habitat at a level that would result in adverse impacts to populations. Annual stream temperature monitoring in Swift Creek and West Fork Swift Creek indicate thermal regimes within the optimal range for Bull trout (Selong et al. 2001) and colder than optimal for Westslope cutthroat trout (Bear et al. 2007). Mean weekly maximum temperature for Swift Creek has not exceeded 14.2° Centigrade (C) during the period of record at this monitoring site (Figure F-5). Mean weekly maximum temperature in West Fork Swift Creek has not exceeded 13.2°C during the period of record at this monitoring site (Figure F-5).

Riparian buffers in the project area are well stocked with saw timber, and are currently providing adequate levels of sediment filtration from roads and harvest units, large woody debris recruitment, and stream shading to maintain fisheries habitat conditions in the project area (Table F-3).

No-Action: No direct or indirect impacts would occur to affected fish species or affected fisheries resources beyond those described in Fisheries Existing Conditions. Cumulative effects (other related past and present factors; other future, related actions; and any impacts described in Fisheries Existing Conditions) would continue to occur.

	1					Im	pact						Can	Commont
Fisheries		D	irect			Seco	ondary	7		Cum	ulativ	e	Impact Be	Number
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High	Mitigated?	Tumber
No-Action														
Sediment		Х				Х				Х			Y	1
Flow Regimes	Х				Х				Х					
Woody Debris		Х				Х				Х			N	2
Stream Shading		Х				Х				Х			N	2
Stream Temp.	Х				Х				Х					2
Connectivity				Х				Х				Х	Y	3
Populations				Х				Х				Х	N	4
Action														
Sediment		Х				Х				Х			Y	5
Flow Regimes		Х				Х				Х			Y	6
Woody Debris		Х				Х				Х			Y	7
Stream Shading		Х				Х				Х			Y	7
Stream Temp.		Х				Х				Х			Y	7
Connectivity				Х				Х				Х	Y	8
Populations				Х				Х				Х	N	4, 9

Action Alternative (see Fisheries table below):

Comments:

- Existing direct, indirect, and cumulative impacts on fisheries resources from sediment are likely elevated compared to the historic condition due to the following; construction, maintenance, and use of open and restricted access roads for commercial timber management and seasonal recreation within 300 feet of classified streams and historic timber harvest in both the SMZ and RMZ. Existing levels of sediment delivery have a low impact on fisheries habitat in the project area.
- 2. Existing direct, indirect, and cumulative impacts on fisheries resources from alterations to instream large woody and stream shade are likely slightly reduced compared to the historic condition due to the presence of roads within 300 feet of classified streams, and historic harvest in the SMZ and RMZ. Current thermal regimes are below the optimal growth and thermal tolerance of Bull trout (Selong et al. 2001) and Westslope cutthroat trout (Bear et al. 2007).
- 3. Fisheries connectivity is limited at multiple locations in all Assessment Areas. Corrective actions will be applied at known fish passage barriers on timelines identified for Bull trout and Westslope cutthroat trout in the aquatic conservation strategies included in DNRCs HCP (DNRC 2012). Currently, connectivity is significantly limited for Westslope cutthroat at fifteen locations in the project area. No fish passage barriers are located on occupied Bull trout habitat.
- 4. Fisheries populations have been adversely impacted by introduced species in the project area. All Assessment Areas currently support intact native fish assemblages, however the presence of introduced species capable of hybridization, and known to negative influence native species through competition, predation, and displacement elevates the existing direct, indirect, and cumulative impacts to a high level.
- 5. Short-term increases in sediment delivery are likely to occur during installation or replacement of perennial and intermittent stream crossings in the project area. Implementation of corrective actions and Forestry BMPs to address sediment delivery on timber haul roads is expected to minimize potential delivery and reduce potential project related impacts (DNRC 2024). No long-term impacts to fisheries habitat are expected due to implementation of the Action Alternative.
- 6. As indicated in the Water Resources Analysis, there is a low risk of low impact to water quantity due to proposed levels of timber harvest in the project area. Anticipated increases in water quantity are unlikely to have a measurable or detectable effect on fisheries habitat. See also comment W-3.
- 7. Proposed riparian management zone timber harvest poses an additional low likelihood of low direct, indirect, and cumulative impacts to large woody debris, stream shade, and stream temperature. Implementation of standard riparian buffers as outlined in DNRCs HCP (DNRC 2012) would be expected to maintain a low risk of low direct, indirect and cumulative impacts to large woody debris, stream shade, and stream temperature in the project area. Anticipated impacts to stream temperature may be detectable but are unlikely to elevate instream temperatures to levels impacting either short-term growth or survival of either Bull trout or Westslope cutthroat trout.
- 8. One existing fish passage impediment is present on the haul route within the project area. Hydrological surveys have indicated seasonal intermittency upstream and downstream from the passage impediment in S33 on Johnson Creek. Upstream fish passage occurs at the site presently during moderate discharge events associated with seasonal runoff. Downstream fish passage is not currently limited when the discharge is present in the stream. Due to the seasonal intermittency and the lack of introduced species in upper Johnson Creek, this structure will remain in place and with passage addressed at a future date within the corrective

action timelines identified in the HCP (DNRC 2012). No change in fisheries connectivity is anticipated with selection of either the No-Action or Action Alternative.

9. No introduction, suppression, or removal of introduced species would occur as a part of the proposed Action Alternative. As such, all existing impacts of introduced species on Bull trout and Westslope cutthroat trout would continue to occur at existing levels. Hybridization between Bull and Eastern brook trout and Westslope cutthroat trout and Rainbow trout will likely occur in connected habitat where introduced species are present, or will move into as physical and thermal conditions become appropriate. Competition for food and habitat will continue to occur, which in combination with physical displacement will likely result in reduced range, abundance, and resilience in native fish populations.

Fisheries Mitigations:

- Applying all applicable Forestry BMPs (including the SMZ Law and Rules) and Forest Management Administrative Rules for fisheries, soils, and wetland riparian management zones (ARMs 36.11.425 and 36.11.426)
- Apply all conservation strategies for HCP covered aquatics species
- Implement riparian buffer protection including SMZ Law and RMZ harvest strategies outlined in the HCP
- Apply timing restrictions for replacement and removal of perennial stream crossings on fish-bearing waters to minimize potential impacts during spawning and early rearing.

Fisheries References

- Bear, E. A., T. E. McMahon, and A. V. Zale. 2007. Comparative thermal requirements of Westslope cutthroat trout and Rainbow trout: Implications for species interactions and development of thermal protection standards. Transactions of the American Fisheries Society. 136: 1113–1121.
- DNRC. 2024. Montana Forestry Best Management Practices. 2024 BMP Audit Executive Summary. 8pp. Montana DNRC, Forestry Division, Missoula, MT. 8pp.
- DNRC. 2012. Montana Department of Natural Resources and Conservation Forested State Trust Lands Habitat Conservation Plan: Final EIS, Volume II, Forest Management Bureau, Missoula, Montana.
- Selong, J. H., T. E. McMahon, A. V. Zale, and F. T. Barrows. 2001. Effect of temperature on growth and survival of Bull trout with application of an improved method for determining thermal tolerance in fishes. Transactions of the American Fisheries Society. 130: 1026–1037.



Figure F-2: Bull trout redd counts in Swift Creek and West Fork Swift Creek, 2000–2024.



Figure F-3: Bull trout substrate score in East Fork, West Fork, and mainstem Swift Creek, 2007–2022.



Figure F-4: Bull trout McNeil Core samples collected in West Fork Swift Creek and mainstem Swift Creek, 2007–2022.



Figure F-5–Mean weekly maximum stream temperature observed in Swift Creek (A) and West Fork Swift Creek (B), 2015–2024.

WILDLIFE:

Wildlife Existing Conditions: The Project Area is 5,786 acres, all of which are included in DNRC's Habitat Conservation Plan (*USFWS and DNRC 2010*). The Project Area consists of forested riparian habitat along the Swift Creek and Antice Creek drainages, transitioning to upland forest habitat along the western portions of Stryke Ridge and eastern portions of the Whitefish Range. Elevations vary from 4,000 to 5,800 feet. Approximately 934 acres in the Project Area (16.1% of the Project Area) have been harvested within the last 40 years with regeneration-type harvest prescriptions, leaving behind younger pole or sapling sized stands with variable tree densities. The Project Area contains 1,942 acres of mature forest stands (trees \geq 65 feet in height with \geq 40% canopy closure), of which 1,226 acres are old-growth forest using Green et al (1992) standards. Stands of mature forest and old growth are fragmented and scattered across the Project Area. Connectivity is currently low and primarily exists within riparian habitat along Swift Creek and Antice Creek. Approximately 41 acres within the Project Area are comprised of nonforested areas, including meadows and wetlands.

There are approximately 10.2 miles of well-traveled open roads, and an additional 7.5 miles of roads are seasonally open to the public. Additionally, there are approximately 19.2 miles of restricted roads in the Project Area and 3.9 miles of temporary roads that are restricted from motorized public use year-round. Public motorized use of open and seasonally open roads is high within the Project Area, especially during the summer, serving as primary access to Upper Whitefish Lake and Red Meadow Lake. Winter snowmobile use is high in the Project Area along groomed portions of the Upper Whitefish and Antice Roads. Public, non-motorized recreational use of the Project Area is low, but likely increases during the big game hunting season.

Cumulative effects analysis areas (CEAA) include lands near the Project Area and include the 15,530-acre Small CEAA for animals with smaller home ranges like pileated woodpeckers and flammulated owls, and a 42,146-acre Large CEAA for animals that travel across larger areas such as grizzly bears and big game. Ownership in the Large CEAA consists of 93.2% DNRC, 6.0% USDA Forest Service, and 0.5% private land. Primary land uses in the CEAAs are commercial timber harvest and outdoor recreation.

Recent and ongoing forest management projects in the CEAA include the Olney North Forest Management Project (*DNRC 2024*), Antice Point North Timber Sale (*DNRC 2016*), McCabe Meadow and McStryker Timber Sales (*DNRC 2022*), Upper Swede and Upper Swede II Timber Sales (*DNRC 2019a*), and Swift Divide Timber Sale (*DNRC, 2019b*). Proposed DNRC forest management projects in the CEAA include the Dog Rock Timber Sale (*DNRC 2024a*), Swift Stryke Timber Sale (*DNRC 2023b*), Taylor to Swift (*DNRC 2024c*), and HB-883 Precommercial Thinning Projects (*DNRC 2023a*). Impacts associated with habitat alterations due to these proposed projects have not been accounted for in the quantitative portion of the following analysis.

Additional information on cumulative effects analysis areas and analysis methods are available upon request. Overall, the Project Area contains of variety of habitat conditions for native wildlife species.

<u>No-Action Alternative</u>: None of the proposed activities would occur. In the short-term, no changes to the amounts, quality, or spatial arrangement of mature forested habitat would occur. In the long-term, habitat suitability for

mature forest-associated species would remain similar or increase compared to current conditions as long as disturbance (such as wildfire) is excluded. An increase in stand-replacement wildfire risk would be anticipated.

						Im	pact						Can Impact	C (
Wildlife		D	irect			Seco	ondary			Cum	ulative		be	Comment Number
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High	Mitigated?	i vullioti
Threatened and														
Endangered Species														
Grizzly bear														
(Ursus arctos)														
Habitat: Recovery		Χ				Х				Χ			Y	WI-1
areas, security from														
human activity														
Lynx (Felis lynx)														
Habitat: SF														
hab.types, dense		Χ				Х				Χ			Y	WI-2
sapling, old forest,														
deep snow zone														
Yellow-billed														
cuckoo (Coccyzus														
americanus)														
Habitat: open														
cottonwood riparian	Χ				Χ				Х					WI-3
forest with dense														
brush understories														
(Lake and Flathead														
counties)														
Wolverine														
(Gulo gulo)														
Habitat: high		V				N 7				N/			• 7	XX/T 4
elevation areas that		Х				Х				X			Y	W1-4
retain high snow														
levels in late spring														
Sensitive Species														
Bald eagle														
(Haliaeetus														
leucocephalus)														
Habitat: Late-	Χ				X				Х					WI-5
successional forest														
within 1 mile of open														
water														
Black-backed														
woodpecker	X				X				Х					WI-3
(Picoides arcticus)														

Action Alternative (see Wildlife table below):

Antice Flats Forest Management Project Montana Department of Natural Resources and Conservation

	Impact Cumulative							Can Impact	Commont					
Wildlife		D	irect	•		Seco	ondary			Cun	ulative		be Mitigated?	Comment Number
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High	willigateu:	
Habitat: Mature to														
old burned or beetle-														
infested forest														
Common loon														
(Gavia immer)														
Habitat: Cold	v				v				v					WI 2
mountain lakes, nest	Λ				Л				л					VV 1-5
in emergent														
vegetation														
Fisher														
(Martes pennanti)														
Habitat: Dense														/
mature to old forest		X				X				X			Y	W1-6
less than 6.000 feet in														
elevation and riparian														
Flammulated owl														
(Otus flammeolus)														
Habitat: Late-														
successional	Х				Х				Х					WI-3
ponderosa nine and														
Douglas-fir forest														
Peregrine felcon														
(Ealco paragrinus)														
(Pulco peregrinus) Habitat: Cliff														
factures near onen	Х				Х				Х					WI-3
formating arrange and/or														
ioraging areas and/or														
wettands														
Plieated														
(Derve e erver er i le etver)														
(Dryocopus pileatus)														
Habitat: Late-		Χ				Χ				Х			Y	WI-7
successional														
ponderosa pine and														
larch-fir forest														
Fair and an at					<u> </u>									
rringea myotis														
(Myotis thysanodes)														
Habitat: low														
elevation ponderosa														
pine, Douglas-fir and	X				X				X					WI-3
riparian forest with														
diverse roost sites														
including outcrops,														
caves, mines														

Antice Flats Forest Management Project Montana Department of Natural Resources and Conservation

						In	pact						Can Impact	a
Wildlife		D	irect			Seco	ondary			Cun	nulative		be	Comment Number
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High	Mitigated?	
Hoary bat (Lasiurus														
cinereus)														
Habitat: coniferous														
and deciduous forests		Χ				Χ				Х			Y	WI-8
and roost on foliage														
in trees, under bark,														
in snags, bridges														
Townsend's big-														
eared bat														
(Plecotus townsendii)	Χ				Χ				Χ					WI-3
Habitat: Caves,														
caverns, old mines														
Big Game Species														
Elk		X				X				X			Y	WI-9
Whitetail		X				X				X			Y	WI-9
Mule Deer		X				X				X			Y	WI-9
Moose		X				X				Χ			Y	WI-9
Other														
Mature Forest		Χ					Χ			Х				WI-10

Comments:

WI-1 Grizzly bear – The Project Area is comprised of 5,786 acres in grizzly bear recovery habitat (*USFWS 1993, Wittinger 2002*) and includes portions of the Upper Whitefish and Lazy Creek grizzly bear management subunits. Approximately 5,432 acres of the Project Area is considered grizzly bear spring habitat. The Project Area does not contain any grizzly security zone habitat (i.e., core). Grizzly bear hiding cover would be altered by the proposed harvest on approximately 677 acres within grizzly bear recovery habitat (15.1% of hiding cover in the Project Area). Post-harvest, sufficient vegetation would be retained on 347 acres within the proposed harvest units and would continue to provide hiding cover for bears in the Project Area. Hiding cover would be removed on the remaining 330 acres (7.3% of available hiding cover within the Project Area) due to low conifer density and lack of hiding cover. Open stands created by logging would likely have a greater availability of forage post-harvest, particularly huckleberries. However, logging would increase the sight distance within the harvest units would increase the amount of available hiding cover. Additionally, clear cutting treatments are designed such that no point within harvest units retaining less than 25 trees per acre would be more than 600 feet from hiding cover. Post-harvest, 4,134 acres, or 71.4% of the Project Area would remain hiding cover.

The total road density is 4.5 miles/square mile within the Project Area. Open and seasonally open road density is 2.0 miles/square mile. No new temporary or permanent roads would be built under this Action Alternative. Motorized use of open and restricted roads within the Project Area would increase to 2.5 miles/square mile during project implementation. Existing restricted roads would remain restricted during harvest, and these roads would be closed with gates or berms. Visual screening would be maintained ≤ 100 feet from an open road where it is

available. Portions of harvest units along open roads are intended to serve as fuel breaks post-harvest and would remove visual screening up to 100 feet from segments of the Upper Whitefish and Antice Roads; however, visual screening will be retained beyond this distance. Where visual screening is scarce between an open road and preferred grizzly bear habitat (i.e. wetlands, meadows), all available cover will be retained. Any grizzly bears using the Project Area could be temporarily displaced by the proposed activities and associated disturbance for up to 5 years. Spring timing restrictions would be applied from April 1 – June 15 for areas of the project adjacent to the Upper Whitefish Road to provide security for grizzly bears in the spring. Additionally, proposed activities would be restricted from April 1 – June 30 along the Antice Road and adjacent spur roads.

After harvest, 33,115 acres (78.6 % of the Large CEAA) of well-connected hiding cover would remain in the Large CEAA and continued use of the area by grizzly bears is anticipated. Impacts to hiding cover and increased disturbance under the Action Alternative would be additive to recent, ongoing, and proposed forest management projects in the CEAA (*see existing conditions section*). The greatest risks to bears within the CEAA would remain human habitations and associated attractants that bring bears into conflict with people.

WI-2. Canada Lynx – The Project Area is comprised of 4,466 acres (77.2% of Project Area) of suitable lynx habitat. Approximately 677 acres (15.2%) of existing suitable habitat in the Project Area would be impacted by the proposed harvest activities. Of these acres, 330 acres (7.4% of suitable habitat) would be treated with harvest prescriptions that would remove conifer canopy cover such that these stands would be temporarily unsuitable lynx habitat after harvest. Approximately 347 acres (7.8% of suitable habitat) would receive harvest treatments that would reduce some habitat attributes but would overall continue to provide suitable lynx habitat. In total, 4,136 acres (71.5% of Project Area) in the Project Area would continue to provide suitable habitat for lynx post-harvest. To ensure that forest structural attributes preferred by snowshoe hares remain following harvest, some dense patches of advanced regeneration would be retained within portions of lynx winter forage habitat. Additionally, 7 to 24 tons/acre of coarse woody debris would be retained in accordance with DNRC Forest Management Rules (ARM 36.11.414) and retention of downed logs \geq 15-inch diameter would be emphasized. Lynx habitat connectivity within the Project Area would be reduced, particularly along open roads where treatments would serve as fuel breaks, increasing distance to cover and limiting coarse woody debris. Post-harvest, suitable lynx habitat in the Large CEAA would be reduced from 77.8% to 77.0%, and habitat connectivity in the Large CEAA would remain high. Lynx have been documented within the Project Area as recently as 2023 (MNHP 2024); therefore, occasional use of the area is possible. If present within or near the Project Area, lynx could be temporarily displaced by forest management activities for up to 5 years. Disturbance/displacement and habitat alteration by the proposed activities would be additive to recent, ongoing, and proposed forest management projects in the CEAA (see existing conditions section).

WI-3. This species was evaluated, and it was determined that the Project Area lies outside of the normal distribution for the species, and/or suitable habitat was not found to be present.

WI-4. Wolverine – Approximately 3,053 acres of the Project Area (52.8% of the Project Area) retains persistent spring snowpack (*Copeland et al. 2010*) and is considered to be wolverine habitat. Approximately 583 acres proposed for harvest coincide with areas that contain persistent snow cover (*Copeland et al. 2010*). Proposed harvest on 330 of these acres (10.8% of existing persistent spring snowpack in the Project Area) would remove the majority of large overstory trees, creating impacts similar to a wildfire, which can cause declines in both peak snow accumulation and snow duration (Kampf et al. 2022). Minor short-term displacement associated with logging disturbance could occur if wolverines are in the area. Logging is not likely to occur during the wolverine denning

season (February – May) given the difficulty of accessing the area and that grizzly bear timing restrictions begin in April and extend through at least June 15th. Wolverines have been observed within the Project Area as recently as 2024 (MNHP 2024, DNRC unpublished data) and occasional use of the area is possible. Given the large home range area wolverines occupy (average 150 square miles; *Hornocker and Hash 1981*) and the long distances wolverines typically cover during their movements, the proposed activities are not expected to measurably affect use of the area by wolverines. Due to the existing levels of year-round motorized recreation within the Project Area and the lack of quality persistent snowpack at these lower elevations, the likelihood of appreciable use by wolverines is low. Existing restricted roads used for harvesting would remain restricted during and after the project. With such a large open area adjacent to open roads, accessibility of the area will likely increase for snowmobiling, potentially causing some displacement of wolverines in the winter for 15 to 25 years until trees grow to a height that reduces snowmobile access. Should any wolverines be present within the Large CEAA, habitat alteration and potential disturbance would be additive to recent, ongoing, and proposed forest management projects and recreational use in the CEAA (*see existing conditions section*).

WI-5. Bald Eagle – The proposed harvest is approximately 0.7 miles from the nearest known bald eagle nest location on Upper Whitefish Lake. (MNHP 2024, DNRC unpublished data). None of the proposed activities are within the primary use area (ARM 36.11.436(7)). Use of this nest site by breeding bald eagles was documented in 2024 (DNRC unpublished data). Thus, active use of this nest site and territory by a breeding pair of bald eagles is likely. Eagles using the Upper Whitefish Lake territory are likely habituated to a moderate level of disturbance from Upper Whitefish Lake, which receives high amounts of recreational activity and motorized disturbance. Ample vegetative cover shall remain in place between the nest site and the open road to avoid disturbance from normal activities. Thus, negligible direct, indirect, or cumulative effects to bald eagles would be expected to occur because of the action alternative.

WI-6. Fisher – The proposed activities would affect 292 acres of currently suitable fisher habitat (15.9% of suitable fisher habitat available in the Project Area). Fisher habitat would be removed on 89 acres (3.3%) due to low canopy cover and low retention of mature trees. The quality of some habitat attributes on the other 203 acres would be reduced, however retained conifer cover would be sufficient to continue providing suitable fisher habitat post-harvest. Additionally, the proposed activities would affect 141 acres of preferred fisher covertypes that do not currently have the stand structure needed to be considered suitable fisher habitat; thus, prolonging the time until these stands become suitable habitat again. Habitat connectivity would decrease following logging but continue to provide connectivity to suitable habitat (45.6% of the Project Area post-harvest). No new temporary road would be built in the Project Area. However, most proposed harvest units are proposed adjacent to open or seasonally open roads. Due to the locations of the proposed harvest activities, an increase in access to trappers and associated mortality risk to any fisher that might be using this area. Existing restricted roads would continue to be restricted by gates or berms post-harvest. To reduce some potential adverse effects on fishers, at least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh) would be retained (ARM 36.11.411). These snags and large trees are important habitat features that provide resting and denning sites for fishers (Olson 2014). Approximately 7.7% of suitable fisher habitat in the Small CEAA would be affected, but abundance would remain moderate (5,564 acres, 35.8% of Small CEAA) after the proposed activities. However, the likelihood of fishers using the Project Area or Small CEAA is low given that one fisher has been observed in the Small CEAA within the last 20 years (MNHP 2024, Krohner 2022). Should any fishers be present within the Small CEAA, habitat alteration and potential disturbance would be additive to recent, ongoing, and proposed forest management projects in the CEAA (see existing conditions section).

WI-7. Pileated Woodpecker – The proposed activities would affect 8 acres (0.5%) of available suitable pileated woodpecker habitat in the Project Area. All these acres would remain suitable habitat, but at a reduced quality due to the removal of mature trees. Approximately 1,571 acres (27.2%) of the Project Area would remain as suitable habitat post-harvest. To reduce potential adverse effects on pileated woodpeckers, at least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or largest size class available) would be retained and all snags cut for safety reasons would be left in the harvest unit (*ARM 36.11.411*). Additionally, 7 to 24 tons/per acre of downed wood would be retained, with an emphasis on logs >15" diameter. Post-harvest, approximately 20.1% (3,122 acres) of the Small CEAA will remain as poorly connected patches of suitable habitat, however continued use of suitable habitat by pileated woodpeckers in the Small CEAA would be anticipated. Habitat alterations due to the proposed action would be additive to recent, ongoing, and proposed forest management projects in the CEAA (*see existing conditions section*).

WI-8. Hoary bat – The proposed activities would affect approximately 217 acres of potential hoary bat habitat (11.2% of potential habitat available). Hoary bats typically roost in tree foliage (*Bachen et al. 2020*) and if present they could be temporarily displaced by timber harvesting. Potential disturbance would only be expected from late May through September, when hoary bats are in Montana. After the conclusion of activities, continued use of harvested areas by hoary bats would be anticipated. At least 2 large snags and 2 large snag recruitment trees per acre (>21 inches dbh, or largest size class available) would be retained and could provide roosting habitat.

WI-9. Big Game – The relatively low elevation riparian corridors associated with Swift Creek and Antice Creek and surrounding mixed conifer forest provides year-round habitat for moose. The Project Area does not provide winter range habitat for deer or elk; however, deer and elk likely use the area during other times of the year (*DFWP 2008*). The proposed clear cutting treatments will likely improve forage production, especially for moose, by resetting forest succession and promoting shrub development; however, the benefits may not be realized for up to 10 years post-harvest (Harris et al. 2024). Proximate stands of dense canopy forest will be maintained to provide an optimal mix of forage, security, and thermal relief during seasonally warm periods and warmest hours of the day. Commercial thinning treatments elsewhere in the Project Area will create a more open understory with increased potential for forage production while allowing for easier movement through these stands. The total road density is 4.5 miles/square mile within the Project Area. Open and seasonally open road density is 2.0 miles/square mile. No new temporary or permanent roads would be built under this Action Alternative. Motorized use of open and restricted roads within the Project Area would increase to 2.5 miles/square mile during project implementation. Existing restricted roads would remain restricted during harvest, and these roads would be closed with gates or berms.

The Project Area contains 3,327 acres (57.5% of the Project Area) that provide at least a marginal degree thermal cover and snow intercept (\geq 40% canopy closure). Timber harvesting would affect 17 acres of high-quality thermal cover and snow intercept (\geq 60% canopy closure; 1.3% of available high-quality thermal cover in the Project Area), and an additional 362 acres of marginal thermal cover (40%-60% canopy closure) would be affected by the proposed activities (17.3% of available marginal thermal cover in the Project Area). Of these acres, 320 acres of marginal thermal cover and snow intercept would be treated with harvest prescriptions that would reduce mature canopy cover below 40%; thus, reducing the capacity of these stands to provide thermal cover (21.4% of the Project Area) would remain within the Project Area post-harvest. An additional 1,769 acres of marginal thermal cover (30.6% of the Project Area) would provide connectivity between scattered thermal cover areas in the Project Area post-harvest. Overall, an estimated 320 acres of total thermal cover (9.6% of currently available thermal

cover) would be removed by the proposed activities. High-quality and marginal thermal cover would remain on approximately 20.2% and 21.5% of the Large CEAA respectively. Alterations to thermal cover due to the proposed action would be additive to recent, ongoing, and proposed forest management projects in the CEAA (*see existing conditions section*).

Hiding cover would be altered by the proposed activities on 674 acres (15.1% of hiding cover in the Project Area). Sufficient vegetation would be retained on 4,134 acres to continue providing hiding cover for big game post-harvest within the Project Area. Proposed harvest treatments would remove hiding cover on 327 acres (7.3% of available hiding cover within the Project Area), however retaining some small patches of regenerating conifers and submerchantable trees within the harvest units would decrease site distances and maintain some cover. The reduction in hiding cover could result in increased mortality risk to big game species due to hunting, particularly along open roads where treatments would serve as fuel breaks, increasing distance to cover. Visual screening along open roads will be maintained within 100-feet of roads to provide security in areas where tree density will become too low to provide cover. Hiding cover would remain on approximately 78.6% of the Large CEAA post-harvest. Habitat alterations due to the proposed action would be additive to recent, ongoing, and proposed forest management projects in the CEAA (*see existing conditions section*).

WI-10. Mature Forest – The proposed action would alter approximately 217 acres of mature forest (11.2% of mature forest within the Project Area) with a reasonably closed canopy ($\geq 40\%$ canopy closure of trees greater than 65 feet in height). Harvest prescriptions on 177 acres (9.1% of existing mature forest) of mature forest within the Project Area would reduce mature live tree densities with post-harvest canopy closure of <40% and would no longer be considered suitable for species that prefer dense mature forests. Post-harvest, 1,766 acres (30.5% of Project Area) of mature forest in the Project Area would continue to be suitable for wildlife that prefer closed canopy mature forest. In both the Project Area and the Small CEAA, the largest and most connected patch of mature forest would be fragmented into three smaller patches. The average patch size within the Project Area would be reduced 14.0% (10 acres), and the maximum patch size would be reduced by 51.2% (321 acres). Connectivity within the Project Area would remain low with scattered small patches of mature forest after harvest. The only existing corridor of mature forest connected to stands outside the Project Area would be impacted by the proposed activities in areas adjacent to the West Fork of Swift Creek. To facilitate movement of wildlife through the Project Area and to adjacent lands after harvest, a corridor approximately 300 feet wide will be maintained along the West Fork Swift Creek and provide a forested connection to mature stands at higher elevations. The proposed harvesting would remove approximately 4.5% of existing mature forest in the Small CEAA, and mature forest abundance would remain low (23.9% of Small CEAA). Connectivity of mature forest in the Project Area and the Small CEAA would remain low post-harvest. Average mature patch size within the Small CEAA would be reduced 8.1% (7 acres) and maximum patch size would be reduced 49.9% (438 acres). DNRC forest management on 1,706 acres (11.0% of the Small CEAA) has removed mature forest within the Project Area and the Small CEAA over the past 25 years. Habitat alterations due to the proposed action would be additive to recent, ongoing and proposed forest management projects in the CEAA (see existing conditions section).

Wildlife Mitigations:

- If a threatened or endangered species is encountered, consult a DNRC biologist immediately. Similarly, if undocumented nesting raptors or wolf dens are encountered within ½ mile of the Project Area, contact a DNRC biologist.
- Contractors will adhere to food storage and sanitation requirements as described in the timber sale contract. Ensure that all attractants such as food, garbage, and petroleum products are stored in a bear-resistant manner.

- Prohibit contractors and purchasers conducting contract operations from carrying firearms while on duty as per *ARM 36.11.444(2)*.
- Restrict public access at all times on restricted roads that are opened for harvesting activities; signs should be used during active periods and a physical closure must be used during inactive periods (nights, weekends, etc.).
- Prohibit commercial forest management activities from April 1-June 15 in all harvest units to protect grizzly bears during the spring. Extended timing restrictions from April 1-June 30 apply to EA Units 3, 4, 5, 6, 7, 8, 10, 11, and 12.
- Effectively close restricted roads and skid trials in the Project Area via a combination of gates, kelly humps, rocks, and stumps.
- Retain visual screening within 100 feet of open roads and all harvest units retaining <25 TPA (applies to units along Upper Whitefish Rd., Johnson Rd., and Antice Loop Rd.).
- No point in a unit can be more than 600 feet to hiding cover or a topographic break, GB-NR4 (*USFWS and DNRC 2010*).
- Within commercial harvest units, retain patches of advanced regeneration of shade-tolerant trees as per LY-HB4 (*USFWS and DNRC 2010*).
- Retain at least 2 snags and 2 snag recruits per acre >21 inches dbh or the next largest available size class, particularly favoring ponderosa pine, western larch and Douglas-fir for retention. If snags are cut for safety concerns, they must be left in the harvest unit.
- Retain 7-24 tons/acre of coarse-woody debris and emphasize retention of 15-inch diameter downed logs, aiming for at least one 20-foot-long section per acre LY-HB2 (*USFWS and DNRC 2010*). High-hazard clean up areas are exempt from standard coarse-woody debris retention guidelines.

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AIR QUALITY:

						In	ipact						Can Impact	Comment
Air Quality		D	irect			Seco	ondary			Cum	ulative		Be Mitigated?	Number
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High	willigateu:	
No-Action														
Smoke	Χ				Χ				Χ					
Dust	Χ				Х				Χ					
Action														
Smoke		X				X				Χ			YES	AQ-1
Dust		X				X				Χ			YES	AQ-2

Comments:

AQ-1: The Project Area is in Airshed 2 as defined by the Montana/Idaho Airshed Group. No impact zones, as described by the Montana/Idaho Airshed Group, are within or near the Project Area. Under the Action Alternative, slash piles consisting of tree limbs, tops, and other vegetative debris would be generated throughout the Project Area during harvesting, site preparation, and fuels reduction activities. These slash piles would be burned after operations have been completed. Burning within the Project Area would be short term and would be conducted when conditions favor good to excellent ventilation and smoke dispersion as determined by the Montana DEQ and Montana/Idaho Airshed Group. The DNRC, as a member of the Montana/Idaho Airshed Group, would burn only on approved days.

AQ-2: Log hauling may increase the dust levels on portions of native surfaced state roads.

Air Quality Mitigations:

- Only burn on days approved by the Montana/Idaho Airshed Group and DEQ.
- Conduct test burn to verify good smoke dispersion.
- Dust abatement strategies such as slow driving speeds, a restricted haul period, and/or application of dust abatement on some road segments.

ARCHAEOLOGICAL SITES / AESTHETICS / DEMANDS ON ENVIRONMENTAL RESOURCES:

Will Alternative result						In	npact						Can Impact	Comment
in potential impacts to:		D	irect			Seco	ondary			Cum	ulative		Be Mitigated?	Number
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High	Willigated:	
No-Action														
Historical or Archaeological Sites	X				X				X					
Aesthetics	Х				X				X					
Demands on Environmental Resources of Land, Water, or Energy	x				x				x					
Action														
Historical or Archaeological Sites	X				X				X					Arch-1
Aesthetics		Х				Χ				Χ			Y	Aest-1
Demands on Environmental Resources of Land, Water, or Energy	X				X				X					

Arch-1: Scoping letters were sent to those Tribes that requested to be notified of DNRC timber sales. No response was returned that identified a specific cultural resource issue. A Class I (literature review) level review was conducted by the DNRC staff archaeologist for the area of potential effect (APE). This entailed inspection of project maps, DNRC's sites/site leads database, land use records, General Land Office Survey Plats, and control cards. The Class I search results revealed that no cultural or paleontological resources have been identified in the APE.

Proposed timber harvest activities are expected to have *No Effect* to *Antiquities*. No additional archaeological investigative work will be conducted in response to this proposed development. However, if previously unknown cultural or paleontological materials are identified during project related activities, all work will cease until a professional assessment of such resources can be made.

Aest-1: Proposed harvest units are adjacent to, or visible from the Upper Whitefish Road, Antice Loop Road, and other open roads in the Project Area as well as the Werner Peak lookout. At certain locations along these routes skid trails, brushed roads, and landings would be visible along these routes.

Mitigations:

- Blend unit edges and incorporate irregular shaped boundaries to mimic natural disturbance events
- Design skid routes and landing areas in a manner which reduces the visual impact adjacent to open roads by retaining more trees.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA: List other studies, plans or

projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

- Upper Swede Timber Sale EA February 2020
- Antice Stryker Timber Sale Project EA April 2016
- Upper Whitefish Lake Timber Sale EA March 2012
- Swedish Chicken Timber Sale Project EA February 2011
- Southeast Stryker Ridge Timber Sale Project EA March 2010
- Chicken/Antice Timber Sale Project EA December 2008
- West Fork of Swift Creek Timber Sale EIS January 2005
- Swede Creek Timber Sale EIS May 1995

Impacts on the Human Population

Evaluation of the impacts on the proposed action including <u>direct, secondary, and cumulative</u> impacts on the Human Population.

						In	npact						Can Impact	
will Alternative result		D	irect			Seco	ondary			Cum	ulative		Be	Comment Number
in potential impacts to.	N o	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High	Mitigated?	Tumber
No-Action														
Health and Human Safety	X				X				X					
Industrial, Commercial and Agricultural Activities and Production	X				X				X					
Quantity and Distribution of Employment	X				X				X					
Local Tax Base and Tax Revenues	X				X				X					
Demand for Government Services	X				X				X					
Access To and Quality of Recreational and Wilderness Activities	X				X				X					
Density and Distribution of population and housing	X				X				X					
Social Structures and Mores	X				X				X					
Cultural Uniqueness and Diversity	X				X				X					
Action														
Health and Human Safety		Х			X				X				YES	Safe-1

Antice Flats Forest Management Project Montana Department of Natural Resources and Conservation

						In	npact						Can Impact	
Will Alternative result		D	irect			Seco	ondary			Cum	ulative		Be	Comment Number
in potential impacts to.	N o	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High	Mitigated?	Tumber
Industrial, Commercial and Agricultural Activities and Production	X				x				X					Econ-1
Quantity and Distribution of Employment		X			X				X					Econ-2
Local Tax Base and Tax Revenues	X				X				X					
Demand for Government Services	X				X				X					
Access To and Quality of Recreational and Wilderness Activities			X			X				X			YES	Rec-1
Density and Distribution of population and housing	X				X				X					
Social Structures and Mores	X				X				X					
Cultural Uniqueness and Diversity	X				X				X					

Comments:

Safe-1: Mitigations have been developed for all log hauling to allow for safe travel and shared use of open roads through the duration of the project

Econ-1: Due to the relatively small size of the proposed forest management project, no measurable direct, indirect or cumulative effects would be likely

Econ-2: Employment within the logging industry is common in the Flathead area, and this project would contribute to local employment

Rec-1: The Flathead Snowmobile Association (FSA) currently has a license to maintain three trailheads and groom 65+ miles of trail on Stillwater State Forest. These trails are primarily established along open roads. Winter log hauling on the first 7 miles of the Upper Whitefish Road would have a direct effect on the public's use of the FSA groomed trail system and on the four businesses that utilize this system of trails to conduct commercial snowmobile tours. Over-the-snow vehicles and log trucks would need to share use of the plowed road until logging operations have finished for the winter season. FSA's commencement of grooming the first 7 miles of the Upper Whitefish Road would be delayed until after plowing operations have ceased. The public's "user experience" would be minimally diminished by sharing this normally groomed route with log trucks; however, the overall impact is expected to be low.

Mitigations:

- Restrict log hauling activities to the "work week" (Monday Friday). Prior approval for holiday or weekend hauling could be granted by the Forest Officer on a case-by-case basis.
- Require contractors and licensed operators to routinely coordinate daily transportation activities on shared plowed and groomed routes with one another directly.
- The first seven miles of the Upper Whitefish Road would be subject to snow plowing. Require contractors to leave a 8ft. to 10ft. strip of 1-to-2-inch base of snow on plowed roads to accommodate over-the-snow use.
- Require contractors to "feather" berms where plowed roads intersect the groomed trail system.

Locally Adopted Environmental Plans and Goals: List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

• There are no locally adopted environmental plans or goals associated with this proposal

Other Appropriate Social and Economic Circumstances:

Costs, revenues and estimates of return are estimates intended for relative comparison of alternatives. They are not intended to be used as absolute estimates of return. The estimated stumpage is based on comparable sales analysis. This method compares recent sales to find a market value for stumpage. These sales have similar species, quality, average diameter, product mix, terrain, date of sale, distance from mills, road building and logging systems, terms of sale, or anything that could affect a buyer's willingness to pay.

No Action: The No Action alternative would not generate any return to the trust at this time.

Action: The timber harvest would generate additional revenue for the Common Schools Trust. The estimated return to the trust for the proposed harvest is \$736,000 based on an estimated harvest of 4.5 MM board feet (32,000 tons) and an overall stumpage value of \$23 per ton. Costs, revenues, and estimates of return are estimates intended for relative comparison of alternatives, they are not intended to be used as absolute estimates of return.

References

DNRC 1996. State forest land management plan: final environmental impact statement (and appendixes). Montana Department of Natural Resources and Conservation, Forest Management Bureau, Missoula, Montana.

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Does the proposed action involve potential risks or adverse effects that are uncertain but extremely harmful if they were to occur? No

Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant? $\rm No$

Environmental Assessment Checklist Prepared By:

Name: Karl Crittenden Title: Management Forester Date: February 3, 2025

Finding

Alternative Selected

Upon Review of the Checklist EA, and attachments, I find the Action Alternative, as proposed, meets the intent of the project objectives as stated in the Type and Purpose of Action section of this document. This project received one public comment during the 30-day scoping period.

The lands involved in this project are held by the State of Montana in trust for the support of specific beneficiary institutions and DNRC is required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X Section 11; and 77-1-212 MCA). An estimated \$736,000.00 would be generated for the Common Schools Trust.

The Action Alternative complies with all pertinent environmental laws, the DNRC SFLMP and HCP, and is based upon a consensus of professional opinion on limits of acceptable environmental impact. For these reasons and on behalf of DNRC I have selected the Action Alternative to be implemented on this project.

Significance of Potential Impacts

After a review of the scoping documents and comments, project file, Forest Management Rules, SFLMP and HCP checklists, and Department policies, standards, and guidelines, I find that all the identified resource management concerns have been fully addressed in this Checklist EA and its attachments. Specific project design features and various recommendations by the resource management specialists will be implemented to ensure that this project will fall within the limits of environmental change. Taken individually and cumulatively, the proposed activities are common practices, and no project activities are being conducted on important unique or fragile sites.

I find there will be no significant impacts to the human environments as a result of implementing the Action Alternative. In summary, I find that the identified impacts will be controlled, mitigated, or avoided by the design of the project to the extent that the impacts are not significant.

Need for **Further Environmental Analysis**

EIS

More Detailed EA



Environmental Assessment Checklist Approved By: Name: Dave Ring

Name: Dave Ring Title: Stillwater Unit Manager Date: March 13, 2025 Signature: /s/ David A. Ring Attachment A – Maps

A-1: Timber Sale Vicinity Map



A-2: Timber Area Map and Harvest Units



Attachment B – Prescription Tables

Unit Number	Est. Acres/MBF	Prescription	Unit Information
1	319 Acres 2,296 MBF	Clear Cut	-Tractor Harvest
	,		- Retain 4-6 trees/acre.
			-Leave overstory WL and DF with good form and overall health at 80'-100' spacing.
			-Leave 2 snags and two snag recruits per acre > 21 " DBH or of the next largest size available. Additional sang recruits would be retained where snags are not available.
			- 50% tree retention, leave-tree-marked RMZ along the West Fork of Swift Creek.
			-Retain visual screen between shaded fuel break and harvest unit.
			-High hazard fuel reduction requirements: Mechanical piling of 90% of slash within 100' of the Johnson Road, Upper Whitefish Road, and the Antice Loop Road must be piled within 60 days of its creation.
			-Mechanical site preparation/scarification and piling to prepare harvest unit for natural regeneration and planting. Unit will be planted with 70% WL and 30% WWP.
			-Establish 100' shaded fuel break along existing open roads via the reduction of tree density and ladder fuels.

Attachment B: Prescription Tables

2	11 Acres 188 MBF	Clear Cut	Tractor Harvest
			- Retain 4-6 trees/acre.
			-Leave overstory WL and DF with good form and overall health at 80'-100' spacing.
			-Leave 2 snags and two snag recruits per acre > 21 " DBH or of the next largest size available. Additional sang recruits would be retained where snags are not available.
			- At least 50% tree retention, leave-tree-marked RMZ along unnamed class 1 stream.
			-Meet wildlife visual screening requirements: maximum 40% tree canopy cover and protection of submerchantable vegetation.
			- High hazard fuel reduction requirements: Mechanical piling of 90% of slash within 100' of the Antice Loop Road must be piled within 60 days of its creation.
			-Mechanical site preparation/scarification and piling to prepare harvest unit for natural regeneration and planting. Unit will be planted with 70% WL and 30% WWP.
			-Establish 100' shaded fuel break along existing open roads via the reduction of tree density and ladder fuels.
3	144 Acres	Commercial Thin	-Tractor harvest unit. Mandatory cut-to-length, in woods processing.
	900 MD1		-Leave 2 snags and two snag recruits per acre > 21 " DBH or of the next largest size available. Additional sang recruits would be retained where snags are not available.
			-Leave seral species (WL and DF) at 20'-30' spacing. Remove whitewoods (ES and SAF), leaving healthy well-formed ES where needed for spacing.
			-Trample slash to maximum possible extent.
			- High hazard fuel reduction requirements: Mechanical piling of 90% of slash within 100' of the Antice Loop Road must be piled within 60 days of its creation.
			-Establish 100' shaded fuel break along existing open roads via the reduction of tree density and ladder fuels.

4	18 Acres	Commercial Thin	-Tractor harvest unit. Mandatory cut-to-length, in woods processing.
			-Leave 2 snags and two snag recruits per acre > 21 " DBH or of the next largest size available. Additional sang recruits would be retained where snags are not available.
			-Leave seral species (WL and DF) at 20'-30' spacing. Remove whitewoods (ES and SAF), leaving health well-formed ES where needed for spacing.
			-Trample slash to maximum possible extent.
			- High hazard fuel reduction requirements: Mechanical piling of 90% of slash within 100' of the Antice Loop Road must be piled within 60 days of its creation.
			-Establish 100' shaded fuel break along existing open roads via the reduction of fuel density (12'-15') stem spacing on small diameter material and ladder fuels.
5	18 Acres	Commercial Thin	Tractor harvest unit. Mandatory cut-to-length, in woods processing.
	57 MDF		-Leave seral species (WL and DF) at 20'-30' spacing. Remove whitewoods (ES and SAF), leaving health well-formed ES where needed for spacing.
			-Trample slash to maximum possible extent.
			- High hazard fuel reduction requirements: Mechanical piling of 90% of slash within 100' of the Antice Loop Road must be piled within 60 days of its creation.
			-Establish 100' shaded fuel break along existing open roads via the reduction of fuel density (12'-15') stem spacing on small diameter material and ladder fuels.

6	12 Acres	Commercial Thin	Tractor harvest unit. Mandatory cut-to-length, in woods processing.
	64 MBF		
			-Leave 2 snags and two snag recruits per acre > 21" DBH or of the next largest size
			avanable. Additional sang recruits would be retained where snags are not avanable.
			-Leave seral species (WL and DF) at 20'-30' spacing. Remove whitewoods (ES and SAF), leaving health well-formed ES where needed for spacing.
			-Trample slash to maximum possible extent.
			- High hazard fuel reduction requirements: Mechanical piling of 90% of slash within 100' of the Antice Loop Road must be piled within 60 days of its creation.
			-Establish 100' shaded fuel break along existing open roads via the reduction of fuel density (12'-15') stem spacing on small diameter material and ladder fuels.
7	4 Acres	Commercial Thin	Tractor harvest unit. Mandatory cut-to-length, in woods processing.
	42 MBF		
			-Leave seral species (WL and DF) at 20'-30' spacing. Remove whitewoods (ES and SAF), leaving health well-formed ES where needed for spacing.
			-Trample slash to maximum possible extent.
			- High hazard fuel reduction requirements: Mechanical piling of 90% of slash within 100' of the Antice Loop Road must be piled within 60 days of its creation.
			-Establish 100' shaded fuel break along existing open roads via the reduction of fuel density (12'-15') stem spacing on small diameter material and ladder fuels.
8	38 Acres	Commercial Thin	Tractor harvest unit. Mandatory cut-to-length, in woods processing.
	193 MBF		-Leave seral species (WL and DF) at 20'-30' spacing. Remove whitewoods (ES and SAF), leaving health well-formed ES where needed for spacing.
			-Trample slash to maximum possible extent.
			- High hazard fuel reduction requirements: Mechanical piling of 90% of slash within 100' of the Antice Loop Road must be piled within 60 days of its creation.

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			-Establish 100' shaded fuel break along existing open roads via the reduction of fuel density (12'-15') stem spacing on small diameter material and ladder fuels.
9	16 Acres 158 MBF	Commercial Thin	Tractor harvest unit. Mandatory cut-to-length, in woods processing. -Leave seral species (WL and DF) at 20'-30' spacing. Remove whitewoods (ES and SAF), leaving health well-formed ES where needed for spacing.
			 -Trample slash to maximum possible extent. - High hazard fuel reduction requirements: Mechanical piling of 90% of slash within 100' of the Antice Loop Road must be piled within 60 days of its creation. -Establish 100' shaded fuel break along existing open roads via the reduction of fuel

10	21 Acres 107 MBF	Commercial Thin	Tractor harvest unit. Mandatory cut-to-length, in woods processing.
			-Leave seral species (WL and DF) at 20'-30' spacing. Remove whitewoods (ES and SAF), leaving health well-formed ES where needed for spacing.
			-Trample slash to maximum possible extent.
			- High hazard fuel reduction requirements: Mechanical piling of 90% of slash within 100' of the Antice Loop Road must be piled within 60 days of its creation.
			-Establish 100' shaded fuel break along existing open roads via the reduction of fuel density (12'-15') stem spacing on small diameter material and ladder fuels.
11	14 Acres	Commercial Thin	Tractor harvest unit. Mandatory cut-to-length, in woods processing.
	/0 MBF		-Leave seral species (WL and DF) at 20'-30' spacing. Remove whitewoods (ES and SAF), leaving health well-formed ES where needed for spacing.
			-Trample slash to maximum possible extent.
			- High hazard fuel reduction requirements: Mechanical piling of 90% of slash within 100' of the Antice Loop Road must be piled within 60 days of its creation.
			-Establish 100' shaded fuel break along existing open roads via the reduction of fuel density (12'-15') stem spacing on small diameter material and ladder fuels.
12	32 Acres	Commercial Thin	Tractor harvest unit. Mandatory cut-to-length, in woods processing.
	317 MBF		-Leave seral species (WL and DF) at 20'-30' spacing. Remove whitewoods (ES and SAF), leaving health well-formed ES where needed for spacing.
			-Trample slash to maximum possible extent.
			- High hazard fuel reduction requirements: Mechanical piling of 90% of slash within 100' of the Antice Loop Road must be piled within 60 days of its creation.
			-Establish 100' shaded fuel break along existing open roads via the reduction of fuel density (12'-15') stem spacing on small diameter material and ladder fuels.
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13	28 Acres 117 MBF	Commercial Thin	Tractor harvest unit. Mandatory cut-to-length, in woods processing.
			-Leave seral species (WL and DF) at 20'-30' spacing. Remove whitewoods (ES and SAF), leaving health well-formed ES where needed for spacing.
			-Trample slash to maximum possible extent.
			- High hazard fuel reduction requirements: Mechanical piling of 90% of slash within 100' of the Antice Loop Road must be piled within 60 days of its creation.
			-Establish 100' shaded fuel break along existing open roads via the reduction of fuel density (12'-15') stem spacing on small diameter material and ladder fuels.

ES = Engelmann spruce

- WL= Western larch
- DF= Douglas-fir
- GF = Grand fir
- SAF= Sub-alpine fir
- LPP=Lodgepole pine
- BMP = Best Management Practices
- DBH = Diameter at Breast Height
- RMZ = Riparian Management Zone
- SMZ = Streamside Management Zone
- WMZ= Wetland Management Zone
- CMZ= Channelized Migration Zone
- ERZ = Equipment Restriction Zone