

Environmental Assessment Checklist

Project Name: Top Secret Timber Sale

Proposed Implementation Date: July 2022

Proponent: Missoula Unit, Southwestern Land Office, Montana DNRC

County: Granite

Type and Purpose of Action

Description of Proposed Action:

The Missoula Unit of the Montana Department of Natural Resources and Conservation (DNRC) is proposing The Top Secret, Timber Sale. The project is located 40 miles east of Missoula, MT in the Secret Gulch drainage (refer to vicinity map Attachment A-1 and project map A-2) and includes the following sections:

Beneficiary	Legal Description	Total Acres	Treated Acres
Common Schools	Section 16 T 12N R14W	640	640
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			

Objectives of the project include:

- Salvage bark beetle infested lodgepole pine and Douglas-fir
- Salvage root rot infected Douglas-fir
- Salvage spruce budworm and/or tussock moth infested Douglas-fir
- Reduce stand density by removing trees high in defect
- Increase stand growth and vigor
- Move stands towards the desired future condition either by planting or natural regeneration
- Generate revenue for the Common School Trust

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	
Clearcut	0
Seed Tree	0
Shelterwood	0
Selection	0
Commercial Thinning	238
Salvage/Sanitation	102
Total Treatment Acres	340 acres
Proposed Forest Improvement Treatment	
Pre-commercial Thinning	429
Planting	160
Proposed Road Activities	
New permanent road construction	.26 Miles
New temporary road construction	0
Road maintenance	6.6 miles
Road reconstruction	0
Road abandoned	0
Road reclaimed	0
Duration of Activities:	48 Months
Implementation Period:	June 2022-June 2026

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: October 8, 2020

- **PUBLIC SCOPED:**
 - The scoping notice was posted on the DNRC Website: <http://dnrc.mt.gov/public-interest/environmental-docs>
 - All individuals, agencies and organizations on the statewide timber sale scoping list were sent scoping notices.
 - Adjacent landowners were sent scoping notices in the mail.
- **AGENCIES SCOPED:**
 - MT FWP and all Montana Tribal Nations
- **COMMENTS RECEIVED:**
 - No comments were received

DNRC specialists were consulted, including Patrick Rennie-Archaeologist; Garrett Schairer-Wildlife Biologist and Andrea Stanley-Soils scientist/Hydrologist.

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 www.dnrc.mt.gov/HCP.
- **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.
- **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 2006). The Group determines the delineation of airsheds and impact zones throughout Idaho and Montana. Airsheds describe those geographical areas that have similar atmospheric conditions, while impact zones describe any area in Montana or Idaho that the Group deems smoke sensitive and/or having an existing air quality problem (Montana/Idaho Airshed Group 2006). As a member of the Airshed Group, DNRC agrees to burn only on days approved for good smoke dispersion as determined by the Smoke Management Unit.

ALTERNATIVES CONSIDERED:

No-Action:

- No commercial harvest, road construction, planting, pre-commercial thinning, weed spraying or road maintenance would occur at this time.

Action Alternative (Provide a brief description of all proposed activities):

- A commercial timber harvest would take place to remove approximately 2 million board feet (MMBF) of timber. Timber would be harvested using ground based methods.
- Approximately .26 miles of new permanent road construction would take place. Roads would continue to be closed to motorized public use.
- Road maintenance would take place on roads used for log hauling and timber harvest.
- Portions of the harvest unit would be planted with ponderosa pine and western larch seedlings.
- Pre-commercial thinning would take place in areas that have reached stocking levels that limit growth.

Impacts on the Physical Environment

Evaluation of the impacts on the No-Action and Action Alternatives including **direct, secondary, and cumulative** impacts on the Physical Environment.

Vegetation Existing Conditions:

Vegetative Community

This area falls within climatic section 332B, which was historically 79% forested. (Losensky, 1997). The project area ranges in elevation from 4,800'-6,000'.

242 acres were harvested in 1988 under the Dry Secret Timber sale. Target scarification for these areas was 30% and was achieved by dozer piling. This tactic was successful, these stands are currently overstocked with natural regeneration. Areas that contained existing advanced regeneration were pre-commercially thinned.

139 acres were harvested in 2008-2011 as part of the Gambler's Secret Timber sale. Both tractor and cable harvest systems were utilized to remove approximately 1.2 million board feet. There was no post-harvest scarification and soil disturbance was minimized during harvest operations. There is currently little to no advanced regeneration in these areas. The areas containing the most regeneration are those areas where skid trails came together and disturbance was concentrated or openings created by insects and disease.

Overstory trees in both previously harvested areas are showing signs of stress, insects, and disease. Douglas-fir have faded crowns and poor crown ratios. Leader growth is minimal with many trees containing a "flat top" appearance. Current and past spruce budworm damage is evident, and pockets of root rot can be observed. Stands that contain lodgepole pine have had

an estimated 40-60% mortality caused by mountain pine beetle infestations. Many of the larger diameter lodgepole pine have succumbed to the insect and there are areas that have fallen over leaving a jackstraw appearance. Stands dominated by Douglas-fir smaller in diameter (4-12" dbh) appear to be the healthiest with far less signs of stress or mortality observed.

There are four distinct stand types within the project area. The distinctions appear to be driven by harvest history.

The first and smallest (8 acres) stand type is a densely populated lodgepole pine stand. Diameters range from 6-14" dbh. Douglas-fir is also present but isn't well represented. Approximately 75% of the stand is either standing dead or has blowdown.

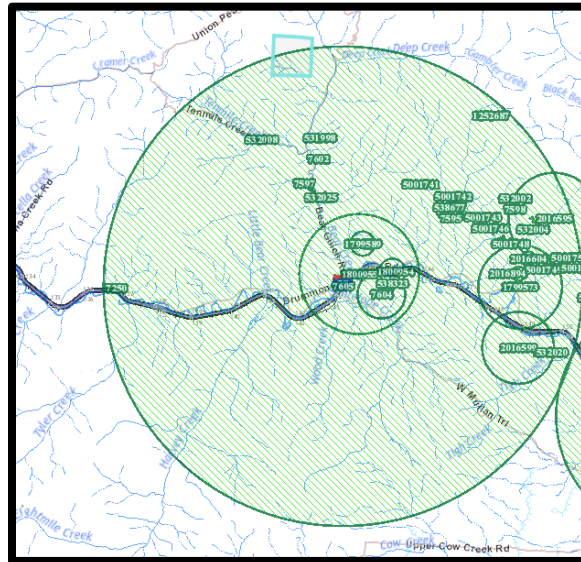
The second stand type is shaped by past harvest prescriptions that left an overstory containing 80-120 BA/Acre. These stands are dominated by Douglas-fir, although western larch and ponderosa pine can be observed in very limited occurrences. Diameters are larger than in the other stand types with the average diameter range being 10"-28" dbh. Douglas-fir retention trees contain a mix of trees that exhibited desirable phenotypes as well as trees with a high amount of crook, sweep and other deformities. Regardless of form, overstory trees are showing very little sign of vigor as can be observed by minimal leader growth, flat crowns and crown densities less than 30%. Defoliating insects and pockets of root rot are also impacting the Douglas-fir population. Although sparse in population, western larch and ponderosa pine are scattered throughout the stand. When present, they are growing well, and no signs of insects or disease were observed in these populations. Very limited amounts of regeneration are present in stands harvested under the Gamblers Secret timber sale. Regeneration is limited to areas where skid trails converged and in openings created by insects and disease. Regeneration in areas harvested in 1988 is clumpy in nature but overstocked and a desirable mix of species including western larch, ponderosa pine, Douglas-fir and lodgepole pine.

The third stand is the largest stand within the section and is dominated by Douglas fir 8-14" dbh existing on a 6-8 foot spacing. Much of this area didn't contain merchantable timber during the previous two entries so much of it hasn't been harvested in the last 40 years. Stumps can be observed throughout the stand, but they were made with a cross-cut saw or axe. Limited amounts of insects and disease activity is present. The only break in the homogenous stand are scattered rock out croppings, small cliffs and scree-like patches.

The fourth stand type exists in areas that had a seed tree/clearcut harvest prescription in 1988. These stands are heavily stocked (1,000+ TPA) with sub-merchantable trees 0-5" dbh. There is a diverse species composition with western larch, Douglas-fir, lodgepole pine, ponderosa pine and sub alpine fir all well represented. Spruce budworm activity is present within the stand, but mortality rates were not a significant concern. A scattered overstory exists, although it would appear that these trees were left to meet retention mitigations rather than serve as crop trees and many of them are of poor quality.

Rare Plants

The Montana Heritage Tracker website included half the project area within a buffered circle for the Keeled Bladderpod. It did not identify a population within the specific project area, rather included it in the potential area (see below).

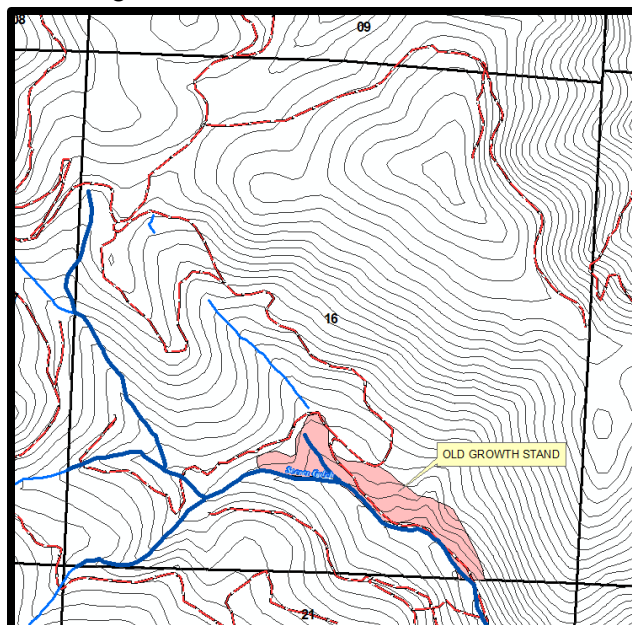


The Keeled Bladderpod (*Physaria carinata*) is restricted to areas of calcareous limestone substrates on low elevation, south-facing grasslands of Granite and Beaverhead Counties. (Montana Heritage Tracker 2020).

There are no south-facing grasslands within the project area. Specific populations of Keeled Bladderpod were not observed in the treatment area.

Old Growth

There are 20.6 acres of Old Growth in the treatment area. This stand exists primarily within the Secret Gulch Streamside Management Zone.



The stand level inventory indicates it is a Western Montana old growth type 5. Old Growth Type 5 stands have a minimum age requirement of 180, minimum trees/acre of 10 greater than 17" dbh and a basal area of 80. No other stands within the project area meet DNRC Old Growth standards.

Noxious Weeds

Past disturbance and current grazing have transported and spread weeds along many of the roads and trails within DNRC ownership in Secret Gulch. Existing weeds include knapweed, houndstongue and thistle.

Vegetation Impacts Summary Table										
Vegetation	Impact								Can Impact Be Mitigated?	Comment Number
	Direct & Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
No-Action										
Vegetative Community			X			X			Y	1
Rare Plants	X				X				N/A	2
Old Growth		X			X				Y	3
Noxious Weeds		X				X			Y	4
Action										
Vegetative Community			X			X			Y	1
Rare Plants	X				X				N/A	2
Old Growth		X					X		Y	3
Noxious Weeds		X				X			Y	4

Vegetation Comments:

1. The Action Alternative would utilize 100% ground based harvest systems to remove trees impacted by insects and/or disease and suppressed trees of all size classes.

The post- harvest stand appearance would resemble natural disturbance. Scattered clumps as well as unevenly spaced overstory trees would remain throughout the project area. Harvest intensity would be based on the health of the overstory. In areas with high amounts of defect and/or insect and disease activity the overstory would be harvested heavier than in those areas where a healthy stand exists. Post-harvest all existing size classes would have representation.

Trees previously killed by beetles that no longer contain living beetles, beetle larvae or commercial value would be left as snags unless they must be removed in order to safely harvest the area.

When present, western larch and ponderosa pine would be favored to maintain species and size class diversity within the stand.

At a minimum, 2 snags and 2 snag recruits per acre would be left.

Pre-commercial thinning would take place in overstocked sub-merchantable stands. Western larch and ponderosa pine would be the preferred leave species followed by Douglas-fir and lodgepole pine. Trees would be thinned to a 14 X 14 foot spacing.

In areas that have struggled to regenerate following the last entry western larch and/or ponderosa pine would be planted post-harvest to shorten rotation times and take advantage of the scarification the harvest operations would provide.

The Action Alternative would have a moderate risk of direct, indirect, and cumulative effects on the vegetative community for the following reasons:

- Trees impacted by insects and/or disease would be salvaged.*
 - Stand density would be reduced, increasing vigor in the residual stand.*
 - A mix of species and size classes more closely representing that which existed historically would be retained.*
 - The combination of ground based operations and intensely harvesting unhealthy trees would provide the scarification and space for advanced regeneration to occur.*
 - Harvest would take place within the Streamside Management Zone and HCP identified retention zones.*
 - Pre-commercial thinning would take place in overstocked stands*
 - Tree planting of seral species would take place in areas that do not meet desired stocking levels.*
- 2. The Montana Heritage Tracker website included the project area within a buffered circle for the Keeled Bladderpod. It did not identify a population within the specific project area. No Keeled Bladderpods were observed within the treatment area. If Keeled Bladderpods are discovered within the treatment area they will be avoided whenever possible during harvest operations*

The Action Alternative would have no risk of direct, indirect, and cumulative effects on rare plants for the following reasons:

- No rare plants have been observed within the treatment area.*
 - If rare plants are discovered during harvest operations efforts will be made to minimize disturbance.*
- 3. 20.6 acres of Old Growth were identified in the treatment area. Approximately 16 acres (calculated using GIS) are within the Secret Gulch Streamside Management Zone. Within this zone tree retention requirements would exceed the minimum retention requirements outlined in the DNRC Old Growth policy to retain the stand as Old Growth. In areas outside of the Streamside Management Zone trees would be marked to leave with a post-harvest density that would meet DNRC Old Growth Requirements. Based on*

post-harvest densities the Action Alternative would have a low risk of direct, indirect, and cumulative effects on Old Growth.

- 4. DNRC would complete roadside spraying in the project area to reduce the spread of weeds along roads. However, noxious weeds would continue to occur and are likely to increase on state and adjacent lands, spread by wind, animals, and equipment operations, on areas of physical and fire disturbance. Project areas would be monitored for noxious weeds after implementation and herbicide would be applied along roads if necessary.*

The Action Alternative would have a low risk of direct, indirect, and cumulative effects on noxious weeds for the following reasons:

- Equipment would be washed and inspected prior to harvest operations.*
- An application of herbicide would be applied along haul roads post-harvest.*

Vegetation Mitigations:

- Protect existing advanced regeneration during all aspects of timber harvest.*
- Meet Old Growth retention requirements so Old Growth stands continue to be classified as Old Growth.*
- Plant western larch and ponderosa pine post-harvest in areas that are not stocked.*
- Pre-commercial thin overstocked stands*
- Monitor the project area for noxious weeds after implementation and apply herbicide along roads.*
- Clean equipment to minimize the potential of introducing new weeds to the project area.*
- Follow SMZ and HCP tree retention requirements during Streamside Management Zone harvest.*

SOIL DISTURBANCE AND PRODUCTIVITY:

Soil Disturbance and Productivity Existing Conditions:

The project is located in Secret Gulch within the Garnet Range north of the Clark Fork and south of the Blackfoot. Underlying geology is mostly Middle Cambrian sedimentary rocks including limestone, sandstone, and shale (Lonn et al., 2010). And a small area of Mesoproterozoic quartzite and argillite at the bottom of Secret Gulch near the southeastern corner of the state-owned section (Lonn et al., 2010). Limestone outcrops occur in road cuts and at the top ridges of the section.

Several rock outcrops are visible along the ridgelines located in the northeastern portion of the project area. Signs of slope instability were not observed within the project section. Groundcover vegetation includes beargrass and ninebark.

Slopes vary with slopes $\geq 50\%$ minimized from proposed harvest areas. Soils within the proposed harvest units are mostly gravelly to stony loams. The main access road in the southwest corner of the project section travels through an area that retains moisture for a lot of the year due to soil type and shading.

Existing and past disturbances

The project area has the following recorded existing and past disturbances:

Past harvests:

- Dry-Secret (1988-1990)
- Gambler's Secret (2008-2011)

The area is included in an active grazing lease. No overgrazing observed. Riparian conditions are good. Impacts due to livestock grazing occur in stream sections adjacent to roads, but these impacted areas are not severe or frequent. Dense riparian vegetation (alder, dogwood, alder) and herbaceous cover along perennial streams.

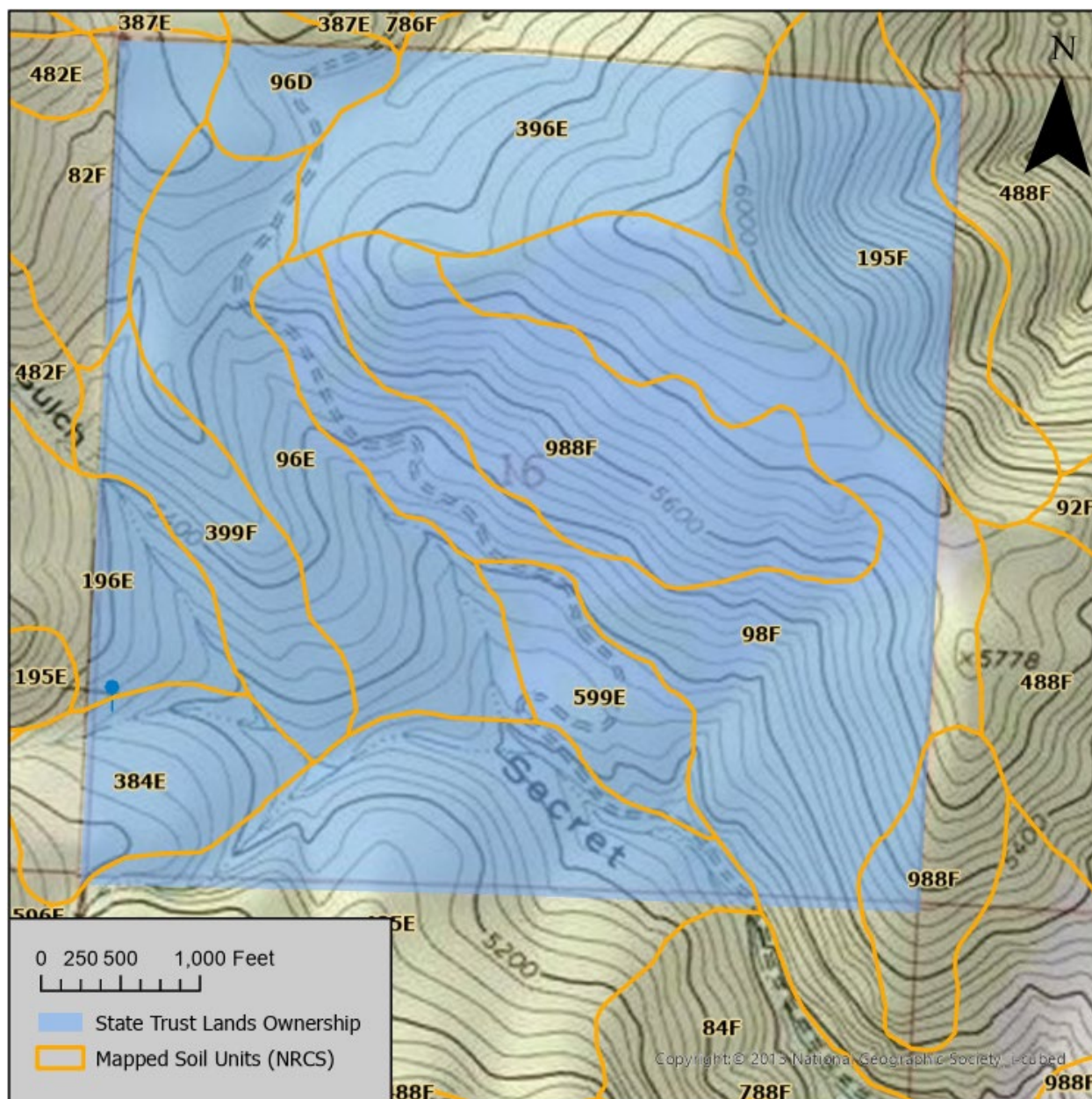


Figure S1: Soil units within Section 16 of T12N R14W.

Map unit	Parent material	Topsoil	WHC	Slopes	Erosion Hazard	Displacement Hazard	Compaction Hazard
988F - Whitecow-Rock outcrop complex	Limestone colluvium	0-4 inches gravelly Loam	4.6 inches	35 - 60%	Moderate	High	Moderate
98F- Trapps gravelly loam	Colluvium derived from limestone	0-8 inches gravelly Loam	5.0 inches	35 - 60%	Moderate	Moderate	Low
599E - Silverchief-Trapps complex	Colluvium derived from limestone	0-5 inches moist fine loam	5.1 inches	15 - 35%	Low	Low	high
96E - Worock gravelly loam	Material weathered	Material weathered from igneous rock	5.3 inches	15 - 35%	Low	Low	Low

	from igneous rock						
399F - Bignell-Yreka complex	Material weathered from extrusive igneous rock	Bignell 0-8 inches Gravelly Clay Loam Yreka 0-3 inches Gravelly Loam	5.2 inches 5.3 inches	35 - 60%	Moderate High	Low High	Low Moderate
96D - Worock gravelly loam	Material weathered from igneous rock	0-6 inches Gravelly Loam	5.3 inches	8 - 15%	Low	Low	Low

Soil Disturbance and Productivity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Physical Disturbance (Compaction and Displacement)	X				X				X				NA	1
Erosion	X				X				X				NA	1
Nutrient Cycling	X				X				X				NA	1
Slope Stability	X				X				X				NA	1
Soil Productivity	X				X				X				NA	1
Action														
Physical Disturbance (Compaction and Displacement)		X				X				X			Y	2, 3, 4, 5
Erosion		X				X				X			Y	2, 3, 5
Nutrient Cycling		X				X				X			Y	4, 5, 6, 7
Slope Stability	X				X				X					8
Soil Productivity		X				X				X			Y	4, 5, 6, 7

Comments:

1. Implementation of the No-Action Alternative would result in no new soil resource impacts in the project area. Soil resource conditions would remain similar to those currently at the site.
2. Soil and vegetation disturbance from harvest activities may result in temporary increased risk of erosion.
3. Soil disturbance and erosion risk increases with slope and slopes in project area exceed 45% in some places.

4. Direct impacts by physical disturbance would likely occur by ground-based yarding. All expected impacts are expected to be less than 12.2% and would be minimized by use of existing roads and skid trails. This disturbance rate estimate is based off previous soil disturbance monitoring of timber sales completed by the DNRC (DNRC, 2011).
5. Approximately ¼ mile of new road construction is proposed in the project section.
6. Applicable state plans, rules, and practices have guided project planning and would be implemented during project activities, including the Montana Code Annotated (specifically Title 77, Chapter 5), the Administrative Rules of Montana (specifically Rule Chapter 36.11), the Montana Forest Best Management Practices, and the State Forest Land Management Plan.
7. According to Graham et al. (1994), a minimum of 4.5 tons/acre of CWD would be a desired post-harvest condition to maintain forest productivity for this forest habitat type.
8. Unstable slopes were not observed on site. The project is anticipated to have no risk to slope stability.

Soil Mitigations:

- BMP's would be implemented on all roads and within the units. Slash from the lop-and-scatter thinning process would be left in the units to mitigate erosion risks.
- Ground-based logging equipment (tractors, skidders, and mechanical harvesters) would be limited to slopes less than 45% unless not causing excessive disturbance.
- The Contractor and Sale Administrator should agree to a general skidding plan prior to equipment operations. Skid trails would be mitigated following harvesting and yarding operations with water bars and/or slash.
- To prevent soil compaction ground-based mechanical felling and yarding would be restricted to one or more of the following conditions:
 - Soil moisture content at 4-inch depth less than 20% oven-dry weight.
 - Minimum frost depth of 4 inches.
 - Minimum snow depth of 18 inches of loose snow or 12 inches packed snow.
- A target minimum of 4.5 tons/acre and preferably 9 tons/acre, of coarse and fine woody debris would be maintained on site to meet the concentration for the DF/PHMA habitat type recommended by Graham et al (1994).

Soil References:

- DNRC, 2011. DNRC compiled soils monitoring report on timber harvest projects, 2006-2010, 1st Edition. Department of Natural Resources and Conservation, Forest Management Bureau, Missoula, MT.
- Graham, R.T., Harvey, A.E., Jorgensen, M.F., Jain, T.B., and Page-Dumrose, D.S., 1994, Managing Course Woody Debris in Forests of the Rocky Mountains. U.S., Forest Service Research Paper INT-RP-477. Intermountain Research Station. 16p.

Lonn, J.D., McDonald, C., Sears, J.W., and Smith, L.N., 2010, Geology Map of the Missoula East 30' x 60' Quadrangle, Western Montana. Montana Bureau of Mines and Geology Open File MBMG 593, Plate 2.

WATER QUALITY AND QUANTITY:

Water Quality and Quantity Existing Conditions:

The majority of the harvest area and project is located in the Secret Gulch watershed which is tributary to Bear Gulch. Below the confluence of Secret Gulch and Bear Gulch the channel disappears with no discernable surface connection to the Clark Fork. Several other Class 2 and 3 streams within the project area drain towards Secret Gulch. Within the project area, Secret Gulch is a perennially flowing stream. Below state ownership and before joining Bear Creek the channel of Secret Gulch becomes dry with only ephemeral flow. The absence of fish within the Secret Gulch watershed was verified in 2022 through eDNA sampling (described further in the fish resources section of this analysis). No surface water right claims are filed with the DNRC on Secret Gulch except for upstream of the state-owned section.

Extensive mining disturbances have occurred and are on-going in the Bear Creek watershed and along its channel and floodplain below and above Secret Gulch. Many sections of the creek have been obliterated by excavation and tailings piles. The absence of a surface connection to the Clark Fork River is likely due to these disturbances and/or the valley-fill alluvium results in surface flow lost to groundwater infiltration. Additionally, the county road that accesses Bear Gulch is located in close proximity to or at the lowest point in the valley and may have also had a role in obliterating what might have been a natural channel.

According to MCA 17.30.607, this portion of the Clark Fork River and its tributaries in the project area are all classified as C-1 (defined in MCA 17.30.626). Two tributaries of Bear Creek, Tenmile, and Deer Creeks have been assessed by the Montana Department of Environmental Quality (DEQ) (Total maximum daily loads and water quality improvement plan – DEQ, 2014). Secret Gulch and Bear Creek have not been assessed. Secret Gulch and Bear Creek are not listed as impaired.

Existing roads and stream crossings are indicated in red in Figure W2. These roads and crossings were reviewed for best management practices implementation and effectiveness. Existing road drainage (i.e., rolling dips) in some areas need improvement; however, signs of erosion or sediment delivery to streams were not observed.

There are portions of road along Secret Gulch that are directly adjacent to the stream channel. In areas where the road has less than a 10-foot buffer between the road and the stream channel, sediment fences have been installed. Inspection of these fences indicate they are still functioning as sediment control.

The culvert crossing located on the mainstem of Secret Gulch within the project section requires an improvement of outlet armoring to meet BMPs.

Stream banks within the project area are densely vegetated with shrubs, willows, and grasses. The section is included in a seasonal livestock grazing license. The most recent grazing assessment completed in 2018 noted excellent riparian condition and management. Impacts due to livestock observed adjacent to roads and at crossings, but impacts are not severe or frequent.

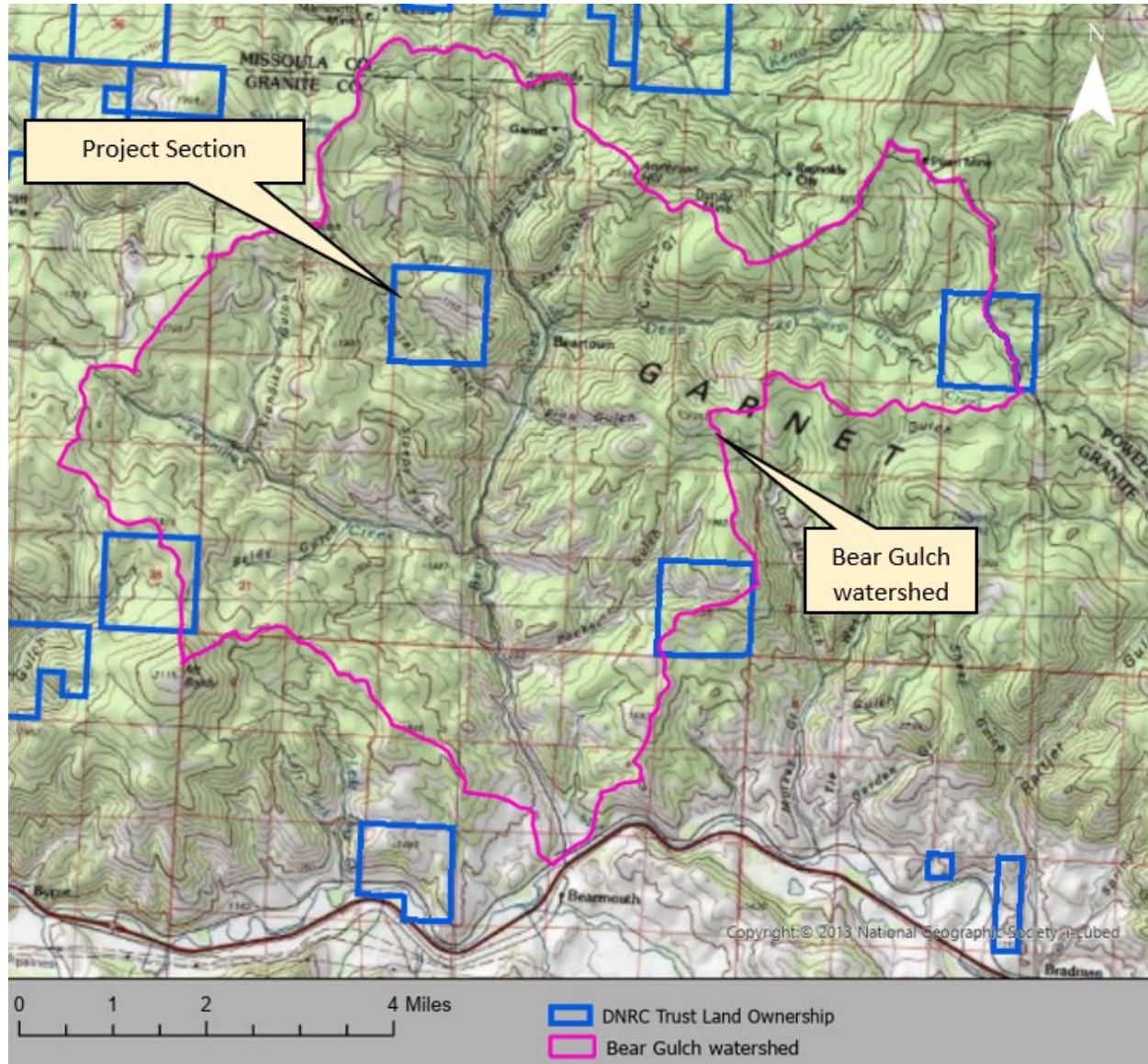


Figure W1. Location of project area within the Bear Gulch watershed (north of the Clark Fork).

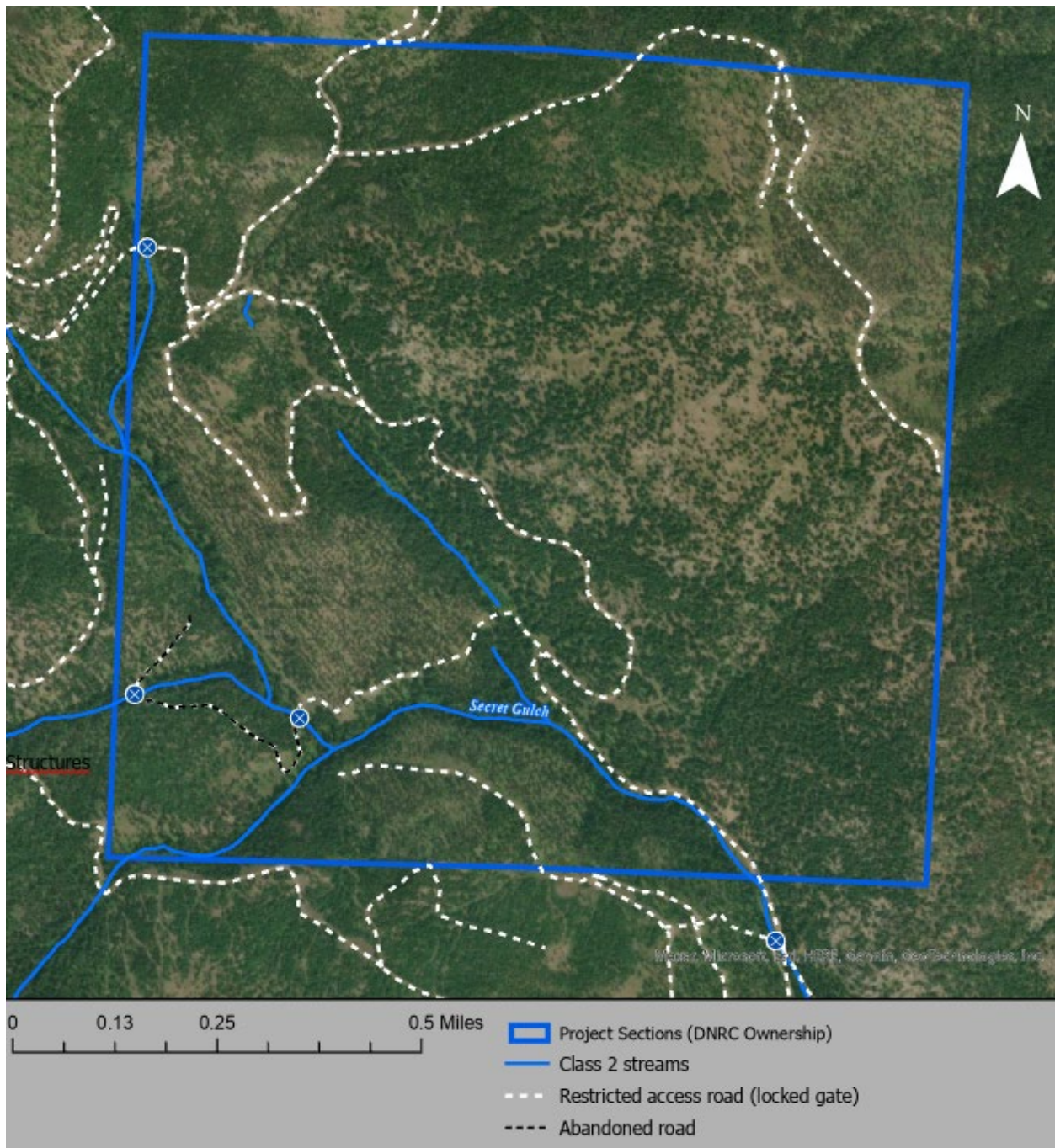


Figure W2. Detail map of project area within Section 16 of T12N R14W, including existing roads and stream crossings, and field-verified streams.

Water Quality & Quantity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Water Quality	X				X				X					1
Water Quantity	X				X				X					1

Water Quality & Quantity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Action														
Water Quality		X				X				X			Y	2, 3
Water Quantity			X				X			X			Y	2, 3

Comments:

1. With no action, no timber harvesting or related activities would occur. Water quality conditions would likely continue under its current condition. Similarly, no risk of change of current fluctuations in annual water yield or stream flow would result.
2. Applicable state plans, rules, practices, and commitments have guided project planning and would be implemented during project activities, including the Montana Code Annotated (specifically Title 77, Chapter 5), the Administrative Rules of Montana (specifically Rule Chapter 36.11), the Montana Forest Best Management Practices, the DNRC Habitat Conservation Plan (2010), and the State Forest Land Management Plan.
3. Changes to stream flow hydrology (water quantity or water flow) may be detectable with the Action Alternative. The proposed project includes harvest areas that would affect approximately 22% of the watershed of Secret Gulch. Additional areas will be treated with precommercial thinning. Studies correlating vegetation harvest and treatment with streamflow yield have suggested approximately 15-20% of the watershed vegetation must be harvested to have a measurable increase in water yield in similar mountain environments (Stednick, 1996; and Bosch and Hewlett, 1982). However, although 22% of the watershed would be affected by the harvest, much of the vegetation within these harvest areas would be retained. In summary, the total project has the potential to approach a 15% removal of watershed vegetation, just enough to risk a detectable change in streamflow. Although detectable, the change in streamflow is not expected to result in a significant risk to water and riparian resources.

Water Quality & Quantity Mitigations:

- Replace rock culverted stream crossings where rock armoring has been scoured since last maintenance or construction.
- Upgrade road drainage as needed to restore BMPs.
- Along the main haul route at the SE corner of the project section – maintain sediment control BMPs.

Water Resources References:

Bosch, J.M. and J.D. Hewlett. 1982. A review of catchment experiments to determine the effect of vegetation changes on water yield and evapotranspiration. J. Hydrology, 55: 3-23.

DEQ (Montana Department of Environmental Quality). 2014. Final – Central Clark Fork Basin Tributaries TMDLs and Water Quality Improvement Plan.
<https://deq.mt.gov/files/water/wqpb/CWAIC/TMDL/COL-TMDL-01a.pdf>

Stednick, J.D. 1996. Monitoring the effects of timber harvest on annual water yield. J. Hydrology 176:79-95

FISHERIES:

Secret Gulch does not have fish present. This was determined using eDNA sampling in January 2022. Samples for eDNA analysis were collected following the protocol developed by staff at the Rocky Mountain Research Station (Carim et al., 2016). Sample sites were spaced approximately 250 meters beginning near the lowest reach of each perennial reach within the project section. A total of 9 samples were collected. Samples were analyzed for any Salmonid species by the Aquaic Lab at the College of Forestry and Conservation at the University of Montana. All results indicated no presence of salmonid species. No other data to support fish presence were located.

No foreseeable direct, indirect, or cumulative effects to fisheries resources are anticipated with an action or no Action Alternative due to the absence of fish within the project section and Secret Gulch and its tributaries. Efforts, including required riparian setbacks stipulated in SMZ law and rules, would be taken to protect the riparian areas for aquatic values.

Fisheries Mitigations:

No additional project-specific mitigations necessary beyond the project design and commitments listed earlier in this analysis and the water resources analysis.

Fisheries References:

Carim K.J., McKelvey, K.S., Young, M.K., Wilcox, T.M., and Schwartz, M.K., 2016, A Protocol for Collecting Environmental DNA Samples From Streams. USFS Rock Mountain Research Station. General Technical Report RMRS-GTR-355.

WILDLIFE:

Evaluation of the impacts of the No-Action and Action Alternatives including **direct, indirect, and cumulative** effects on Wildlife.

Wildlife Existing Conditions: The project area is a mix of forested Douglas-fir and lodgepole pine stands, with lesser amounts of Douglas-fir/western larch and mixed conifers stands. Some limited use by grizzly bears is possible as grizzly bears continue to move out of the recovery zone and non-recovery occupied habitats to the north of the project area. There are roughly 375 acres of suitable Canada lynx habitats in the project area, which includes 224 acres of 'other suitable' habitats, 115 acres of winter foraging habitats, and 35 acres of summer foraging habitats; these habitats are bisected by unsuitable habitats. Potential habitat exists for fisher, flammulated owls, pileated woodpeckers, hoary bats, and fringed myotis in the project area. Big game winter range does not exist, but summer range and big game security habitat exists in the project area.

No-Action: Continued maturation could improve pileated woodpecker habitats, Canada lynx habitats (but at the expense of summer foraging habitats), and big game security habitats, but could reduce habitat quality for flammulated owls over the long term. Generally, negligible direct, indirect, or cumulative effects would occur.

Action Alternative (see Wildlife table below):

Wildlife	Effects								Can Impact be Mitigated?	Comment Number
	Direct and Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
Threatened and Endangered Species										
Grizzly bear (Ursus arctos) Habitat: Recovery areas, security from human activity		X				X			Y	1
Canada lynx (Felix lynx) Habitat: Subalpine fir habitat types, dense sapling, old forest, deep snow zone			X			X			Y	2
Yellow-Billed Cuckoo (Coccyzus americanus) Habitat: Deciduous forest stands of 25 acres or more with dense understories and in Montana these areas are generally found in large river bottoms	X				X					3
Sensitive Species										
Bald eagle (Haliaeetus leucocephalus) Habitat: Late-successional forest less than 1 mile from open water	X				X					3
Black-backed woodpecker (Picoides arcticus) Habitat: Mature to old burned or beetle-infested forest	X				X					3
Common loon (Gavia immer) Habitat: Cold mountain lakes, nest in emergent vegetation	X				X					3
Fisher (Martes pennanti)		X				X			Y	4

Wildlife	Effects								Can Impact be Mitigated?	Comment Number
	Direct and Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
Habitat: Dense mature to old forest less than 6,000 feet in elevation and riparian										
Flammulated owl <i>(Otus flammeolus)</i> Habitat: Late-successional ponderosa pine and Douglas-fir forest		X				X			Y	5
Fringed myotis <i>(Myotis thysanodes)</i> Habitat: low elevation ponderosa pine, Douglas-fir and riparian forest with diverse roost sites including outcrops, caves, mines	X				X					6
Hoary bat <i>(Lasiurus cinereus)</i> Habitat: coniferous and deciduous forests and roost on foliage in trees, under bark, in snags, bridges	X				X					7
Peregrine falcon <i>(Falco peregrinus)</i> Habitat: Cliff features near open foraging areas and/or wetlands	X				X					3
Pileated woodpecker <i>(Dryocopus pileatus)</i> Habitat: Late-successional ponderosa pine and larch-fir forest		X				X			Y	8
Townsend's big-eared bat <i>(Plecotus townsendii)</i> Habitat: Caves, caverns, old mines	X				X					3

Wildlife	Effects								Can Impact be Mitigated?	Comment Number
	Direct and Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
Wolverine <i>(Gulo gulo)</i> Habitat: Alpine tundra and high-elevation boreal forests that maintain deep persistent snow into late spring	X				X					3
Big Game Species										
Elk		X				X			Y	9
Whitetail		X				X			Y	9
Mule Deer		X				X			Y	9
Moose		X				X			Y	9
Other	X				X					

Comments:

1. The project area is 22 miles southwest of the Northern Continental Divide Ecosystem grizzly bear recovery area and is 4 miles southwest of 'occupied' grizzly bear habitat as mapped by grizzly bear researchers and managers to address increased sightings and encounters of grizzly bears in habitats outside of recovery zones (Wittinger et al. 2002). Individual animals could occasionally use the project area while dispersing or possibly foraging, and they could be displaced by project-related disturbance if they are in the area during proposed activities. However, given their large home range sizes, and manner in which they use a broad range of forested and non-forested habitats, the proposed activities and alterations of forest vegetation on the project area would have negligible influence on grizzly bears.
2. There are roughly 375 acres of suitable Canada lynx habitats in the project area, which includes 224 acres of 'other suitable' habitats, 115 acres of winter foraging habitats, and 35 acres of summer foraging habitats. Most of the suitable lynx habitats in the project area are along the northern and southern boundaries with a sizable swath of unsuitable habitats interspersed in the middle of the project area, thus habitats are disconnected and exist in a matrix of non-suitable habitats. The project area is in DNRC's Garnet Lynx Management Area (LMA), which has historically supported a small population of lynx, however more recently the area does not appear to not be supporting a reproductive population of Canada lynx (USFWS 2017). Across the cumulative effects analysis area, a variety of potential lynx types exist on both DNRC-managed lands (85% of potential lynx habitats on DNRC lands in the cumulative effects analysis area are currently suitable) and other ownerships, but are intermixed with non-suitable habitats in portions of both of those areas. Connectivity between potentially suitable habitats in the vicinity is limited due to the percentage of unsuitable habitats and a host of human developments.

In general, extensive use of the project area and to a lesser degree the larger cumulative effects analysis area by Canada lynx would not be anticipated. Proposed timber management would alter 132 acres of suitable lynx habitats that are split between winter foraging habitats (60 acres) and other suitable habitats (66 acres) with a small amount (6 acres) of summer foraging habitats. Following proposed treatments, all 307 acres (82%) would likely be considered temporary non-suitable habitats. Overall, a moderate reduction in potential lynx habitats would occur at the project level due to the anticipated openness of the resulting stands. Generally lynx have relatively low use of silvicultural-treated areas for 10-40 years depending on the intensity of the treatments (Holbrook et al 2018). Coarse woody debris would be retained (emphasizing retention of some logs 15 inches dbh and larger) to provide some horizontal cover and security structure for lynx. DNRC is committed to retaining 20% of potential thinning units in lynx habitats unthinned to provide to provide some areas of denser stocking that would provide higher quality habitat for snowshoe hares and thus foraging habitats for lynx; roughly 38 acres of dense saplings would be retained unthinned in the lynx types, which would be identified after the proposed commercial harvesting but prior to the proposed pre-commercial thinning activities. Proposed pre-commercial thinning on up to 21 acres in proposed harvest units within lynx types and up to an additional 131 acres (84 acres of other habitats, 28 acres summer foraging and 20 acres of winter foraging habitats) of proposed precommercial thinning outside of proposed units would further reduce stand densities within habitats for Canada lynx and their prey. Areas within proposed pre-commercial thinning units would be dense enough to be considered other suitable habitats following proposed actions; collectively this shift in habitat classes (an increase of up to 48 acres of other habitats from summer and winter foraging habitats) would not appreciably alter Canada lynx habitat availability any further. Within proposed pre-commercial thinning units in lynx habitats, small shade tolerant trees (such as sub-alpine fir and spruce) would be retained where possible to provide potential habitat structure for snowshoe hares by increasing the levels of horizontal cover and accelerating the development of multi-storied stands. Collectively, proposed commercial and pre-commercial activities would convert up to 114 acres of summer and winter foraging habitats to 'other suitable' habitats following proposed treatments, reducing foraging habitats in the LMA from 45.7% to 42.9%; DNRC is committed to retaining a minimum of 20% of all potential lynx habitats as foraging habitats. The retention of patches of advanced regeneration of shade-tolerant trees in foraging habitats would break-up sight distances, provide horizontal cover, and provide forest structural attributes preferred by snowshoe hares and lynx. Proposed planting on 141 acres of lynx habitats (split between proposed units associated with this project and past projects) would expedite the regeneration of suitable lynx habitats in those areas, which would be a benefit for lynx and their prey and decreasing the time those areas are in the unsuitable category. Overall, given the mitigations to retain some connectivity corridors through the project area coupled with the intermixing of suitable and unsuitable habitats, potential reductions in available habitats, and overall anticipated use levels, minor direct and indirect effects would be anticipated. Minor further reductions in forested connectivity would be anticipated, but given the intermixing of suitable types with not preferred lynx types, reductions in connectivity would not likely alter lynx use of the cumulative effects

analysis area. The reduction would slightly decrease the quality of habitats in the cumulative effects analysis area, but given the nature of habitats in the cumulative effects analysis area and anticipated use levels, minor cumulative effects would be anticipated with the proposed harvesting. Following proposed treatments, roughly 3,157 acres (78%) of DNRC-managed lands in the Garnet LMA would be in the various classes of suitable lynx habitats.

3. The project area is either out of the range of the normal distribution for this species or suitable habitat is not present. Thus, no direct, indirect, or cumulative effects would be anticipated.
4. Roughly 9 acres of potential riparian fisher habitats exist along the class 2 streams in the project area and approximately 19 acres of potential upland fisher habitats along with another 34 acres of upland preferred fisher covertypes that lack structural attributes that would facilitate use by fisher occur in the project area. These habitats are concentrated along Secret Gulch in the south-central portion of the section and the preferred covertypes exist along the northern edge of the project area; thus the preferred covertypes are disconnected and separated by drier and more open habitats. Similarly, habitats in the cumulative effects analysis area are also somewhat discontinuous and interspersed with drier and/or more open habitats than generally used by fisher, thus extensive use would not be anticipated. Trace amounts of riparian fisher habitats would receive commercial treatments that could reduce overall tree numbers and canopy closure, but no appreciable changes in fisher suitability would be anticipated given the anticipated retention levels. Similarly, very minor amounts <3 acres (30%) of riparian habitats would receive pre-commercial thinning; collectively negligible changes to riparian fisher habitats would be anticipated. Meanwhile roughly 3 acres (16%) of upland fisher habitats and another 16 acres (47%) of preferred covertypes would receive commercial harvest type treatments, which would reduce canopy closure and resultant stands would be too open to be used by fisher. Roughly 9 acres (47%) of upland fisher habitats and 29 acres (85%) of upland preferred covertypes would be pre-commercially thinned, which could improve overall canopy growth in the future, which could expedite the time it takes for those stands to be suitable for fishers. Approximately 4 acres of fisher habitats and 4 acres of preferred covertypes would be planted, which would also expedite the recovery of those stands into fisher habitats sooner with the advanced tree growth. No changes in open roads would be anticipated; trapping pressure and the potential for fisher mortality would not change. The amount of the preferred riparian fisher cover types meeting structural requirements for fishers at the cumulative-effects analysis area would not change on DNRC-managed lands. Reductions in upland habitats would further reduce the amount of suitable upland fisher habitats in the cumulative effects analysis area. These reductions would be additive to the losses associated with past timber harvesting in the cumulative-effects analysis area.
5. There are approximately 265 acres of potential flammulated owl habitats in dry Douglas-fir stands across the project area. Portions of the project area and cumulative effects analysis area have been harvested in the recent past, potentially improving flammulated

owl habitat by creating foraging areas and reversing a portion of the Douglas-fir encroachment and opening up stands of ponderosa pine; however retention of large ponderosa pine and/or Douglas-fir was not necessarily a consideration in some of these harvest units, thereby minimizing the benefits to flammulated owls. Flammulated owls can be tolerant of human disturbance (McCallum 1994), however the elevated disturbance levels associated with proposed activities could negatively affect flammulated owls should activities occur when flammulated owls are present. Proposed activities could overlap the nestling and fledgling periods. Since some snags would be retained, loss of nest trees would be expected to be minimal. Proposed timber management on 161 acres of potential flammulated owl habitats would open the canopy while favoring ponderosa pine and Douglas-fir. Similarly, the proposed pre-commercial thinning on 73 acres of flammulated owl habitats would open those stands up and make them more suitable for foraging. Proposed planting would expedite the growth of young trees in potential foraging habitats and move the stands towards future flammulated owl habitats. The more open stand conditions, the retention of fire adapted tree species, and the maintenance of snags would move the project area toward historical conditions, which is preferred flammulated owl habitat.

6. Fringed myotis are year-round residents of Montana that use a variety of habitats, including deserts, shrublands, sagebrush-grasslands, and forested habitats. They overwinter in caves, mines, crevices, or human structures. Fringed myotis forage near the ground or near vegetation. No known caves, mines, crevices, or other structures used for roosting occur in the project area or immediate vicinity, but some rock outcrops and small cliffs exist that could be suitable for fringed myotis use. Fringed myotis have not been documented in the vicinity of the project area or vicinity. Proposed activities could disturb fringed myotis should they be in the area. Changes in vegetation structural attributes could change overall prey availability, but considerable foraging habitats would persist in the project and cumulative effects analysis areas. Overall, no appreciable changes to fringed myotis use of the project area or cumulative effects analysis areas would be anticipated.
7. Hoary bats are summer residents (June-September) across a variety of forested habitats in Montana. Hoary bats frequently forage over water sources near forested habitats. Hoary bats are generally thought to roost alone, primarily in trees, but will also use caves, other nests, and human structures. Some use by hoary bats would be possible given the varied habitats in the project area and the proximity to Bear Creek, the Clark Fork River, and numerous other smaller wetlands. Individual trees and snags in the existing forested habitats could be used for roosting. No known caves or other structures used for roosting occur in the project area or immediate vicinity; but some rock outcrops and small cliffs exist that could be suitable for hoary bat use. Hoary bats have not been documented in the vicinity of the project area. Proposed activities could disturb hoary bats should they be in the area. Loss of potential roosting habitats could occur, but considerable amounts of trees would persist in the project and cumulative effects analysis areas. No changes in foraging habitats would be anticipated. Overall, no

appreciable changes to hoary bat use of the project area or cumulative effects analysis areas would be anticipated.

8. Roughly 279 acres of pileated woodpecker nesting habitat exist in the project area; another 152 acres of potential foraging habitats exist in the project area. Disturbance to pileated woodpeckers could occur if proposed activities occur during the nesting period; no disturbance to nesting pileated woodpeckers would occur should activities occur outside of the nesting season. Proposed timber management would reduce forested habitats for pileated woodpeckers in the project area. Roughly 125 acres of potential foraging habitats would be opened up with proposed timber management. Another 139 acres of potential foraging habitats in Douglas-fir stands would also be opened up with proposed activities. Most of these areas treated would be too open to be considered pileated woodpecker habitats, but some potential continued use as foraging habitats could be possible depending on density of trees retained. Proposed planting and pre-commercial thinning would not affect current pileated woodpecker habitats, but could expedite the movement of those stands towards future pileated woodpecker habitats. Elements of the forest structure important for nesting pileated woodpeckers, including snags, coarse woody debris, numerous leave trees, and snag recruits would be retained in the proposed harvest areas. Since pileated woodpecker density is positively correlated with the amount of dead and/or dying wood in a stand (McClelland 1979), pileated woodpecker densities in the project area would be expected to be reduced on 340 acres. In the cumulative effects analysis area, the loss of 125 acres of potential nesting habitats and 139 acres of potential foraging habitats would further reduce available habitats and reduce the overall quality of the cumulative effects analysis area for pileated woodpeckers. Overall a reduction in the ability of the cumulative effects analysis area to support pileated woodpeckers would be anticipated.
9. No big game winter range exists in the project area. Summer range for white-tailed deer, mule deer, elk, and moose exists in the project area. Potential big game security habitat exists in the project area. Proposed activities could disturb big game in the non-winter period should activities occur during those seasons. Proposed timber management, and pre-commercial thinning activities would reduce big game hiding cover on potential big game security habitats, but no changes in open roads would occur, thus minor alterations to big game security habitat would be anticipated. Proposed activities would not prevent big game movement through the project area appreciably and could stimulate browse production in the units.

Wildlife Mitigations:

- A DNRC biologist will be consulted if a threatened or endangered species is encountered to determine if additional mitigations that are consistent with the administrative rules for managing threatened and endangered species (ARM 36.11.428 through 36.11.435) are needed.
- Motorized public access will be restricted at all times on restricted roads that are opened for harvesting activities; signs will be used during active periods and a physical closure (gate, barriers, equipment, etc.) will be used during inactive periods (nights, weekends,

etc.). These roads and skid trails would be reclosed to reduce the potential for unauthorized motor vehicle use.

- Snags, snag recruits, and coarse woody debris will be managed according to *ARM* 36.11.411 through 36.11.414, particularly favoring western larch and ponderosa pine. Clumps of existing snags could be maintained where they exist to offset areas without sufficient snags. Coarse woody debris retention would emphasize retention of downed logs of 15-inch diameter or larger.
- Contractors and purchasers conducting contract operations will be prohibited from carrying firearms while on duty.
- Food, garbage, and other attractants will be stored in a bear-resistant manner.
- Should a raptor nest be identified in or near project activities, activities will cease and a DNRC biologist will be contacted. Site-specific measures will be developed and implemented to protect the nest and birds prior to re-starting activities.
- Retention of patches of advanced regeneration of shade-tolerant trees, such as sub-alpine fir and Engelmann spruce, in units in lynx habitats would break-up sight distances, provide horizontal cover, and provide forest structural attributes preferred by snowshoe hares and lynx.
- Provide connectivity for fisher, Canada lynx, and a host of other species by maintaining corridors of unharvested and/or lighter harvested areas along riparian areas, ridge tops, and saddles.
- In pre-commercial thinning units, retain small shade tolerant trees (such as sub-alpine fir and spruce to provide potential habitat structure for snowshoe hares by increasing the levels of horizontal cover and accelerating the development of multi-storied stands.
- Retain a minimum of 38 acres of lynx habitats in the pre-commercial thinning units in the Garnet Lynx Management Area unthinned to provide denser stands for snowshoe hares, targeting stands with higher existing densities.

Wildlife References:

- Holbrook, J. D. J. R. Squires, B. Bollenbacher, R. Graham, L. E. Olson, G. Hanvey, S. Jackson, R. L. Lawrence. 2018. Spatio-temporal responses of Canada lynx (*Lynx canadensis*) to silvicultural treatments in the Northern Rockies, U.S. *Forest Ecology and Management* 422: 114-124.
- McCallum, D. A. 1994. Review of technical knowledge: flammulated owls. Pages 14-46 in G. D. Hayward and J. Verner, tech eds. *Flammulated, boreal, and great gray owls in the United States: a technical conservation assessment*. USDA Forest Service Gen. Tech. Rep. RM-253. Fort Collins, Colorado.
- McClelland, B.R. 1979. The pileated woodpecker in forests of the Northern Rocky Mountains. Pages 283-299 in *Role of insectivorous birds in forest ecosystems*. Academic Press.

U.S. Fish and Wildlife Service. 2017. Species Status Assessment for the Canada lynx (*Lynx canadensis*) Contiguous United States Distinct Population Segment. Version 1.0, October, 2017. Lakewood, Colorado.

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AIR QUALITY:

Air Quality	Impact												Can Impact Be Mitigated?	
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Smoke	X				X				X					
Dust	X				X				X					
Action														
Smoke		X				X				X			Yes	1
Dust	X				X				X				Yes	2

Air Quality Comments:

1) Under the Action Alternative, slash piles consisting of tree limbs and tops and other vegetative debris would be created throughout the project area during harvesting. These slash piles would ultimately be burned after harvesting operations have been completed.

2) Traffic associated with the timber sale has the potential to cause an increase in dust on the Secret Gulch and Bear Gulch Roads.

Air Quality Mitigations:

- Burning within the project area would be short in duration and would be conducted when conditions favored good to excellent ventilation and smoke dispersion as determined by the Montana Department of Environmental Quality and the Montana/Idaho Airshed Group.
- The DNRC, as a member of the Montana/Idaho Airshed Group, would burn only on approved days.
- Contract clauses may provide for the use of dust abatement or require trucks to reduce speed if necessary to reduce dust near any affected residences.

Will the No-Action or Action Alternatives result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
<i>No-Action</i>														
Historical or Archaeological Sites	X				X								N/A	1
Aesthetics		X				X							Y	2

Will the No-Action or Action Alternatives result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Demands on Environmental Resources of Land, Water, or Energy	X				X									
Action														
Historical or Archaeological Sites	X				X									
Aesthetics		X				X							Y	2
Demands on Environmental Resources of Land, Water, or Energy	X				X									

Archaeological Site Comments:

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 III inventory was conducted in 1988 of much of the area of potential effect (APE). Two cultural resource sites were documented at that time. Site 24GN0443 consists of cabin remains along the road and drainage in the S1/2SE1/4 of Section 16, T12N R14W. Site 24GN0448 consists of cabin remains and a chert quarry.

Aesthetics Comments:

2) Under the No Action Alternative, the stand would continue to suffer mortality from insects and disease. This would occur across all size classes, including large diameter Douglas-fir. As insects move through the stand, red needled trees would be observed throughout the stands. Eventually stands would have a gray appearance.

Under the Action-Alternative trees previously killed by beetles that no longer contain beetles, beetle larvae or commercial value would be left unless they must be removed in order to safely harvest the area.

Two harvest prescriptions would be implemented. The sanitation harvest prescription would leave post-harvest stands more open than what currently exists. Trees with fading crowns, insects and disease, bole deformities (including crook and sweep) or limited growth would be harvested. The second prescription is a commercial thin. Post-harvest stands would have a more uniform appearance with the best growing tree being left regardless of size on a 15-25 foot spacing.

Pre-commercial thin areas would have a more uniform appearance post treatment. Stand density would be reduced and tree spacing would be approximately 14 X 14. If precommercial treatments were implemented by hand, slash would be lopped and scattered and would remain onsite. If trees were mechanically thinned slash would be masticated and would also remain on site but would be present in pieces rather than the entire tree.

Slash piles consisting of tree limbs, tops and other vegetative debris would be created throughout the project area during harvesting. These slash piles would ultimately be burned after harvesting operations have been completed.

Due to topography and proximity to open roads, none of the proposed harvest would be able to be observed from an open road. The areas directly to the south, east, and west of the proposed project has received several entries under previous ownership. Harvest and pre-commercial thinning prescriptions would further soften hard edges along property lines.

Archaeological Mitigations:

- Both sites will be flagged and avoided with proposed timber harvest activities.

Aesthetics Mitigations:

- The proposed prescription would emulate natural processes.

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.*

- None

Impacts on the Human Population

Evaluation of the impacts on the proposed action including **direct, secondary, and cumulative** impacts on the Human Population.

Will the No-Action or Action Alternatives result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
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	X				X				X					

Will the No-Action or Action Alternatives result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
population and housing														
Social Structures and Mores	X				X				X					
Cultural Uniqueness and Diversity	X				X				X					
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					

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.

- None

Other Appropriate Social and Economic Circumstances:

Costs, revenues and estimates of return are solely intended for relative comparison of alternatives. They are not 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 proposed timber harvest would generate additional revenue for the Common School Trust. The estimated return to the trust would be \$126,000 based on an estimated harvest of 1.5 million board feet and an average stumpage value of \$12.00 per ton. Additional Forest Improvement fees of \$3.61/ton (based on a tons/MBF of 7) would be collected for all sawlog loads. DNRC does not track project-level costs for individual timber sales. An annual cash flow analysis is conducted on the DNRC forest product sales program. Revenue and costs are calculated by land office and statewide. 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 proposed pre-commercial thinning and planting would initially generate cost to the Trust; however this would be an investment in increased productivity for the stand. This increased productivity should result in increased volume, available at an earlier date.

Direct Costs associated with pre-commercial thinning are estimated to be \$85,800. This figure is achieved by multiplying the estimated number of acres 429 by estimated cost per acre \$200. This cost estimate is assumed from recent hand thinning projects sold at SWLO. Tree planting costs for the project are estimated at \$300/acre based on the 2022 tree growing/planting contracts.

The assumed cost should be recovered, by a net increase in growth, thus lessening rotation between harvests.

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.
- DNRC. 2010. Montana Department of Natural Resources and Conservation Forested State Trust Lands Habitat Conservation Plan: Final EIS, Volume II, Forest Management Bureau, Missoula, Montana.
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- Patla, S. M. 2005. Monitoring results of northern goshawk nesting areas in the Greater Yellowstone Ecosystem: is decline in occupancy related to habitat change? J. Raptor Res. 39:324-334.

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Woodbridge, B., and P. J. Detrich. 1994. Territory occupancy and habitat patch size of Northern Goshawks in the southern Cascades of California. *Studies in Avian Biol.* 16: 83-87.

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?

NO

Environmental Assessment Checklist Prepared By:

Name: Amy Helena
Title: Missoula Unit Manager
Date: September 6, 2022

Finding

Alternative Selected

Alternative B-The Action Alternative

Significance of Potential Impacts

An interdisciplinary team (ID Team) has completed the Environmental Assessment (EA) for the proposed Top Secret Timber Sale prepared by the Montana Department of Natural Resources and Conservation (DNRC). After a review of the EA, project file, public correspondence, Department Administrative Rules, policies, and the State Forest Land Management Plan (SFLMP), I have made the following decisions:

ALTERNATIVE SELECTED

Two alternatives were presented, and the effects of each alternative were fully analyzed in the EA:

Alternative A: Deferred Harvest (No Action Alternative)

Alternative B: Harvest (Action Alternative)

Alternative B proposes to harvest approximately 2,000,000 board feet of timber on 340 acres. Alternative A does not include the harvest of any timber. Subsequent review determined that the alternatives, as presented, constituted a reasonable range of potential activities.

For the following reasons, I have selected Alternative B (the Action Alternative) without additional modifications:

The Action Alternative meets the Project Need and the specific project objectives as described on page 2 of the EA. The Action Alternative would produce an estimated net return of \$24,205 to the Common School (CS) Trust, while providing a mechanism whereby the existing timber stands would be moved towards conditions more like those, which existed historically.

The analysis of identified issues did not disclose any reason compelling the DNRC to not implement the timber sale.

The Action Alternative includes mitigation activities to address environmental concerns identified during both the Public Scoping phase and the project analysis.

SIGNIFICANCE OF IMPACTS

For the following reasons, I find that the implementation of Alternative B will not have significant impacts on the human environment:

Soils-Leaving 5-15 tons of large, woody debris on site will provide for long-term soil productivity. Harvest mitigation measures such as skid trail planning and season of use limitations will limit the potential for severe soil impacts.

Water Quality-The Action Alternative would improve the surface drainage on existing roads, clean ditches and culverts outlets thereby reducing the amount of current sedimentation within the project area. Water Quality Best Management Practices for Montana Forests (BMPs) and the Streamside Management Zone (SMZ) law will be strictly adhered to during all operations involved with the implementation of the Action Alternative.

Cumulative Watershed Effects-Estimated increases in annual water yield for the proposed action have been determined to be negligible by the DNRC Hydrologist. Increases in sediment yield are expected to be negligible due to the amount of area treated, location along the landscape, and mitigations designed to minimize erosion.

Cold Water Fisheries- No fish are present in Secret Gulch. This was determined using eDNA sampling, therefore no foreseeable direct, indirect, or cumulative effects to fisheries resources are anticipated with an action or an action alternative.

Air Quality-Any slash burning conducted as part of the Top Secret Timber Sale will be conducted in coordination with the Montana/Idaho Airshed group in order to ensure that ideal smoke dispersion conditions exist prior to ignition and throughout the duration of any burning operations. As a result, impacts to air quality should be minor and short in duration.

Noxious Weeds-Equipment will be cleaned prior to entering the project area, which will reduce the likelihood of weed seeds being introduced onto treated areas. The DNRC will monitor the project area for two years after harvest and will use an Integrated Weed Management strategy to control existing and/or new weed infestations should they occur.

Forest Conditions and Forest Health-The proposed harvest will begin the process of returning the timber stands within the project area to those conditions that most likely existed on the site(s) prior to organized fire suppression.

Visual Quality- Although visual aesthetics are difficult to quantify; the action alternative will limit the amount of new permanent roads and utilize a harvest prescription that leaves the largest, healthiest trees within treated stands. The aesthetic quality of the project area should improve in the long term as the remaining trees within treated stands increase in size and their crowns expand. Additionally harvest activities will promote natural seral species regeneration generally considered visually pleasing.

Wildlife-The proposed harvest operations present a minimal likelihood of negative impacts to Threatened and Endangered Species. Those potential impacts that do exist have been

mitigated to levels within acceptable thresholds. The same is true for those species that have been identified as “sensitive” by the DNRC. The effects of the proposed action on Big Game species would be low to moderate.

Economics- The Action Alternative would provide approximately \$126,000 in net short-term revenue to the Common School Trust and does not limit the DNRC’s options for generating revenue from these sites in the future.

PRECEDENT SETTING AND CUMULATIVE IMPACTS-

The project area is located on State-owned lands, which are “principally valuable for the timber that is on them or for growing timber or for watershed” (MCA 77-1-401). The proposed action is similar to past projects that have occurred in the area. Since the EA does not identify future actions that are new or unusual, the proposed timber harvest is not setting precedence for a future action with significant impacts.

Taken individually and cumulatively, the identified impacts of the proposed timber sale are within established threshold limits. Proposed timber sale activities are common practices and none of the project activities are being conducted on fragile or unique sites.

The proposed timber sale conforms to the management philosophy adopted by DNRC in the SFLMP and is in compliance with existing laws, Administrative Rules, and standards applicable to this type of action.

SHOULD DNRC PREPARE AN ENVIRONMENTAL IMPACT STATEMENT (EIS)?

Based on the following, I find that an EIS does not need to be prepared:

The EA adequately addressed the issues identified during project development, and displayed the information needed to make the pertinent decisions.

Evaluation of the potential impacts of the proposed timber sale indicates that significant impacts to the human environment will not occur as a result of the implementation of the Action Alternative.

The ID Team provided sufficient opportunities for public review and comment during project development and analysis.

Need for Further Environmental Analysis

☐ EIS

☐ More Detailed EA

☒ No Further Analysis

Environmental Assessment Checklist Approved By:

Name: Scott Allen

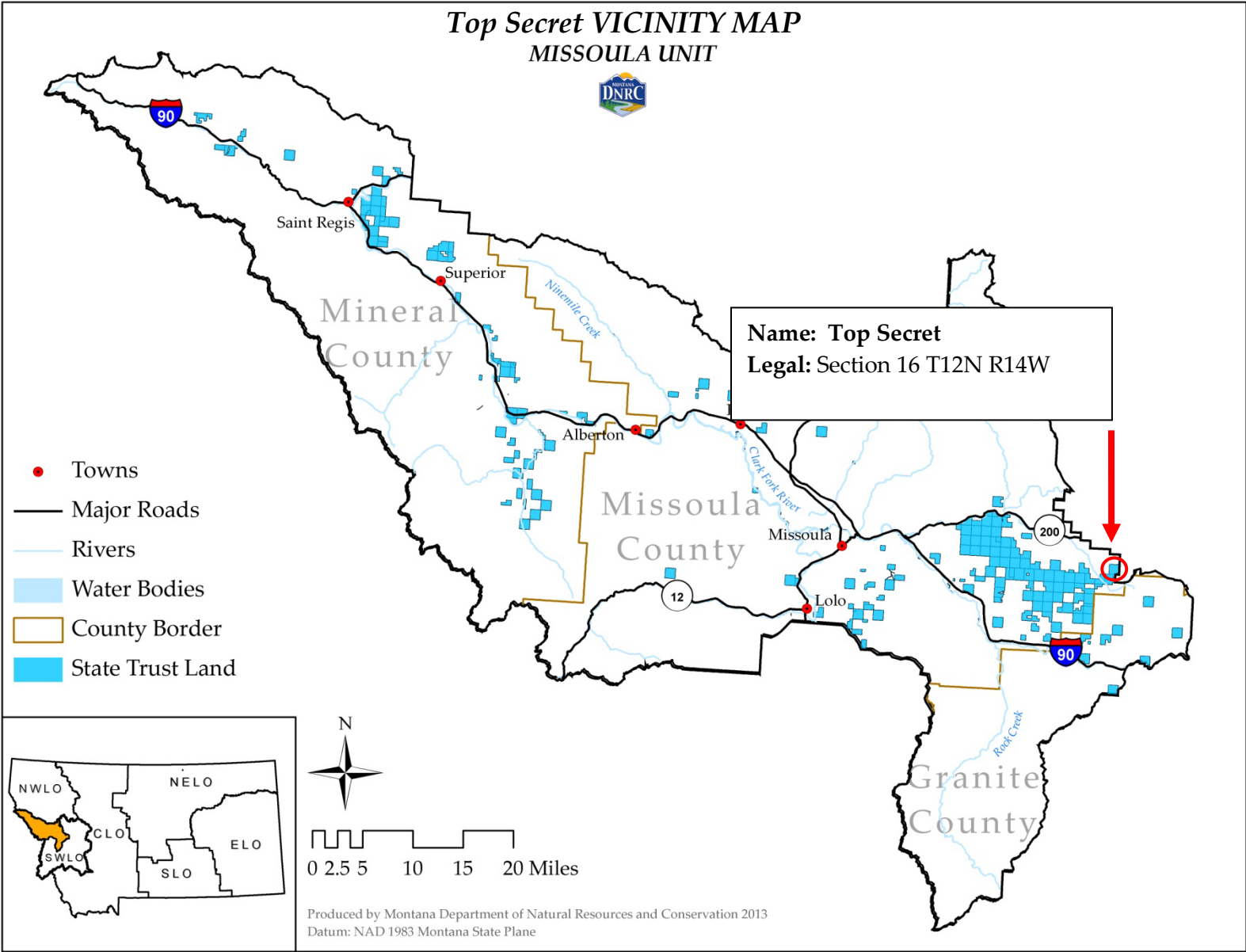
Title: Trust Lands Management Supervisor

Date: November 15, 2022

Signature: /s/ *Scott Allen*

Attachment A- Maps

A-1: Timber Sale Vicinity Map



A-2: Proposed Forest Improvement Projects

