Environmental Assessment Checklist

Project Name: Young Creek Fire Salvage
Proposed Implementation Date: December 2017
Proponent: Stillwater Unit, Northwest Land Office, Montana DNRC
County: Lincoln

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 Young Creek Fire Salvage. The project is located approximately 8 miles northwest of Eureka, MT (refer to Attachments Vicinity Map A-**1** and Project Map A-**2**) and includes the following sections:

Beneficiary	Legal Description	Total Acres	Treated Acres
Common Schools	**T37N R28W Sec. 16**	**640**	**231**
Public Buildings			
MSU 2nd 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:

- The State is required by law to establish a salvage timber program that provides for the timely salvage of logging of dead or dying timber on State Trust Lands. Under this requirement, the Department shall, to the extent practicable, harvest dead and dying timber before there is substantial wood decay and value loss *(Section 77-5-207, Montana Codes Annotated [MCA]).*
- The burn intensity from the Caribou Fire in September 2017 was primarily stand replacement on the north side of Young Creek within the State's Young Creek section and mixed severity on the south side of the creek. The primary objective of the proposed project is to capture the value of the burned timber for the school trust fund and rehabilitate sites on State Lands. The trust beneficiary for this section of State land is Common Schools.

Proposed activities include:
Salvage of approximately 1.5 million board feet (MMbf) of primarily burned western larch and Douglas-fir sawlogs utilizing the following prescriptions.

Action	Quantity
Proposed Harvest Activities	# Acres
Salvage Clearcut with reserves	170
Salvage Seed Tree	39
Shelterwood	
Salvage Selection	22
Commercial Thinning	
Total Treatment Acres	
Proposed Forest Improvement Treatment	# Acres
Pre-commercial Thinning	
Planting	200
Proposed Road Activities	# Miles
New permanent road construction	
New temporary road construction	0.15
Road maintenance	7.4
Road reconstruction	
Road abandoned	
Road reclaimed	
Other Activities	

Duration of Activities:	1.5 years
Implementation Period:	Winter 2017 to Winter 2018

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),
- 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 4, 2017 - October 18, 2017
- PUBLIC SCOPED:
  - The scoping notice was posted on the DNRC Website: http://dnrc.mt.gov/public-interest/public-notices, as well as at the Eureka Post Office and a legal ad in the Tobacco Valley News.
  - Adjacent landowners, statewide scoping list, newspapers, user groups, and conservation organizations were also scoped.

- AGENCIES SCOPED: MT FWP, MT DNRC, USFS, CSKT and other state tribal organizations

- COMMENTS RECEIVED:
  - How many: 3
  - Concerns: Black-backed woodpecker habitat and Young Creek water yield; Dead and downed burned trees near residences and open roads; Urgency of salvaging burned timber before the sawlogs deteriorate.
  - Results (how were concerns addressed): Greater than 10% of the burn area would be left as suitable habitat for black-backed woodpeckers as per DNRC's Forest Management Rules;
  - Most trees to be salvaged died or are highly likely to die therefore not increasing water yield in the Young Creek drainage over the current conditions;
  - Salvage harvesting would maximize recovery of burned logs and clear areas along roads to limit effect of blowdown over time.

DNRC specialists were consulted, including: Marc Vessar, Forest Hydrologist, DNRC
Leah Breidinger, Wildlife Biologist, DNRC
Patrick Rennie, Archeologist, DNRC

Internal and external issues and concerns were incorporated into project planning and design and will be implemented in associated contracts.

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 http://dnrc.mt.gov/divisions/trust/forest-management/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 Alternative: No salvage actions would occur as a result of this Alternative.

Action Alternative: Approximately 1.5 MMbf of dead and dying sawlogs would be harvested with ground-based logging operations.

Access to the harvest units is on existing roads although a reclaimed temporary road may be reused. Temporary road access through private property to the north has been attained as well as temporary road access through the USFS for areas south of Young Creek.

Earthen berms or other types of barriers would be installed near the creek and on other segments of DNRCs roads as they have been initially designated as restricted roads. A gate will be reinstalled on the north section line to allow access to the existing grazing/hay crop licensed area.

Approximately 200 acres will be planted to help steer the forested areas to ponderosa pine and western larch which are the primary desired future condition.

DNRC would allow Montana Department of Fish, Wildlife and Parks (DFWP) to repair the fence they installed around the stream restoration project they completed in 2003.

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:

Vegetation Existing Conditions: This summary includes information about the existing condition of the forest on the Young Creek section before the Caribou Fire and after the fire in September 2017.

No old-growth stands were identified within this section prior to the fire and this attribute will not be discussed further in this document.

No sensitive plants were noted in surveys done prior to Young Sophie Environmental Assessment (2003).

Prior to the fire, the forest types were primarily western larch/Douglas-fir with approximately 30 acres of hay field and 30 acres of mixed conifer within the riparian area near Young Creek.

Most of this section was selectively harvested in 2003-2004 with several small (<25 acre) regeneration harvests planted with ponderosa pine.

Within the Young Creek drainage (~22,697 acres), which includes the Sink Creek drainage, approximately 70% of the area was affected by fire; ownership is 68% USFS, 21% Canadian (unknown owners), 7% non-industrial private, 3% State of Montana DNRC and 1% State of Montana FWP. The Caribou Fire affected approximately 342 acres of the Montana DNRC section. The intensity of the fire on the north side of the creek and riparian area was stand replacement while on the south side only portions were burned and that was primarily mixed severity. In the project area 199 acres were severely burned, 143 acres received a mixed severity fire, and 298 did not burn.

The stand replacement fire killed over 95% of the trees; the mixed severity fire area killed between 30 and 70% of the trees, creating small openings as well as lightly under-burning areas.

Noxious weeds, mainly knapweed (*Centaurea maculosa*), Canada thistle (*Cirsium arvense*) and hounds tongue (*Cynoglossum officinale*), are found in and around the proposed project area. Current occurrences are found mainly along existing roads. Incursions of noxious weeds into forested sites have not been observed.

Vegetation	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Noxious Weeds		**x**				**x**				**x**			**Y**	**V-1**
Rare Plants	**x**				**x**				**x**					
Vegetative community		**x**				**x**				**x**				**V-2**
Old Growth	**x**				**x**				**x**					
Action														
Noxious Weeds		**x**											**Y**	**V-1**
Rare Plants	**x**				**x**				**x**					
Vegetative community		**x**				**x**				**x**				**V-3**
Old Growth	**x**				**x**				**x**					

Comments:
V-1: New introduction and spread of noxious weeds will likely result from suppression efforts on the Caribou Fire. The introduction of weeds to new sites could occur due to operating

machinery carrying seeds within the perimeter of the Caribou Fire. In addition, existing infestations of weeds may spread into burned areas where competing vegetation was burned off. The Action Alternative would expose mineral soil in the project area in addition to what has already occurred by the Caribou Fire. Over the long term, if mitigation measures are not successful, additional populations of noxious weeds could be established.

V-2: Under the No-Action Alternative similar tree species would regenerate in most areas where larger diameter western larch, Douglas-fir, and ponderosa pine survive one year after this fire. Regeneration may be spotty in the larger areas with stand replacement fire intensities. Snags would be prevalent; over time coarse woody debris (CWD) would accumulate to high densities on the ground. Douglas-fir trees would be at risk to Douglas-fir beetle infestations.

V-3: Under the Action Alternative western larch, Douglas-fir, and ponderosa pine would regenerate naturally and, with monitoring of regeneration that would follow harvest activities, DNRC may determine planting of several tree species is needed in the larger stand replacement areas of the fire area. Potentially more ponderosa pine and western larch would be planted, increasing the amount of tree species diversity. Snags would be present in harvested areas but at levels averaging 4 trees per acre with submerchantable snags at higher levels, and unharvested areas would have denser snag levels. CWD would be primarily small-diameter trees in the harvested area, otherwise over time the CWD in the uncut areas would be similar to the No-Action Alternative. Douglas-fir trees would be at risk to Douglas-fir beetle infestations but at lower levels than the No-Action Alternative.

Vegetation Mitigations:

Measures that would be implemented to reduce the establishment of additional weed populations include:

- surface blading to remove weeds before the seed-set stage, when applicable, on the road system affected by the proposal;
- cleaning all tracked and wheeled equipment of noxious weeds prior to beginning project operations; the Forest Officer will inspect equipment periodically during project implementation;
- promptly revegetating disturbed roadside sites; reshaping and grass seeding the roads that have been used and closed; and
- monitoring the area in coming years to help combat the further spread of weeds.

SOIL DISTURBANCE AND PRODUCTIVITY:

Soil Disturbance and Productivity Existing Conditions:

A review of *Soil Survey of Kootenai National Forest Area, Montana and Idaho* (Kuennen and Nielsen-Gerhardt 1995) shows three landtypes in the State-managed parcel. Harvest is proposed on all three landtypes in varying amounts.

- Landtype 102 (25 acres of proposed harvest): Soils in this landtype are generally located adjacent to waterbodies. This landtype consists of terraces formed by silty lake sediment deposits. Sediment delivery efficiency is low on the terrace surfaces and high on scarp faces. This landtype is well suited for timber management due to the high productivity of the sites. Road construction suitability is poor due to the erosion potential of material exposed during construction and low bearing strength of the soil.

- Landtype 323 (81 acres of proposed harvest): Rolling foothills and drumlins are characteristic of this landtype. Soils in this landtype are formed in calcareous glacial till. Surface layers consist of silt loam over a gravely silt loam to silty clay loam subsoil resulting in moderate to well drained soils. This landtype is well suited for timber management and moderately suited to road construction except on steep slopes where the suitability is poor.
- Landtype 324 (137 acres of proposed harvest): Soils in this landtype generally exhibit a gravelly silt loam surface layer with very gravelly silt loam subsoil. Sediment delivery efficiency is low. This landtype is moderately suited to timber management and well suited to road construction. Revegetation is limited by droughtiness and surface crusts which form on exposed material.

Impacts from past activities are considered low due to skid trail spacing and season-of-operation restrictions. Much of this parcel was harvested during the Young/Sophie Timber Sale (DNRC 2002) in 2003 and 2004.

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**				**S-1**
Erosion		**X**				**X**					**X**			**S-2**
Nutrient Cycling		**X**				**X**				**X**				**S-3**
Slope Stability	**X**				**X**				**X**					**S-2**
Soil Productivity		**X**				**X**				**X**				**S-3**
Action														
Physical Disturbance (Compaction and Displacement)		**X**				**X**				**X**			**Y**	**S-1**
Erosion		**X**				**X**					**X**		**Y**	**S-2**
Nutrient Cycling		**X**				**X**				**X**			**Y**	**S-3**
Slope Stability	**X**				**X**				**X**				**N**	**S-2**
Soil Productivity		**X**				**X**				**X**			**N**	**S-3**

Comments:
S-1: Existing physical disturbance from past harvesting is considered low. Skid trails are well-spaced and have vegetation types similar to non-trafficked areas. Continued BMP implementation for skid trail spacing, slope limitations and soil moisture restrictions would keep the cumulative impacts low.
S-2: Upland erosion in the State parcel—as well as other wildfire-affected areas—would be expected to increase due to the loss of vegetation and debris on forest soils. Steeper slopes with fine textured surface soils would be expected to have the highest increase in erosion until vegetation is re-established. BMP implementation to minimize increases in erosion from harvest activities may include slope limitation, season of operation, debris placement and water barring of skid trails. No unstable slopes that would result in landslides were observed in the State parcel.

S-3: Nutrient cycling would be slightly diminished due to the loss of forest floor litter during the Caribou fire. As vegetation re-establishes and leaf litter is incorporated in to the forest floor, the cycle of providing nutrients to growing vegetation through decay would resume.

Soil Mitigations:

Recommended Mitigation Measures and Contract Clauses

ARM 36.11.422 (2) and (2)(a) state that appropriate BMPs shall be determined during project design and incorporated into implementation. To ensure that the incorporated BMPs are implemented, the specific requirements would be incorporated into the DNRC Timber Sale Contract. As part of this alternative design, the following BMPs and recommendations are considered appropriate and, would be implemented during harvesting operations:

1) Harvest Schedule: The majority of ground-based harvest would be prioritized to be completed during winter months on all harvest areas.
2) Limit equipment operations to periods when soils are relatively dry (less than 20 percent oven-dry weight harvest units), frozen, or snow-covered to in order to minimize soil compaction and rutting, and maintain drainage features. Check soil moisture conditions prior to equipment start-up. In order to prevent soil resource impacts, logging activities would be restricted to periods when one or more of the following conditions occurs, unless otherwise approved in writing by the Forest Officer.
   a. Soil-moisture content at 4-inch depth is less than 20% of oven-dry weight.
   b. Minimum frost depth of 3 inches.
   c. Minimum of 16 inches loose snow or 8 inches packed snow adequate to avoid soil displacement.
3) On ground-based units, the logger and sale administrator would agree to a skidding plan prior to equipment operations. Skid-trail planning would identify which main trails to use and how many additional trails are needed. Trails that do not comply with BMPs (i.e. trails in draw bottoms) would not be used unless impacts can be adequately mitigated. Regardless of use, these trails may be closed with additional drainage installed, where needed, or grass-seeded to stabilize the site and control erosion. Additional requirements include:
   a. Locate skid trails as far apart as feasible (recommend 75 feet between trails).
   b. Skid trails would have erosion control installed where needed as directed by the forest officer.
4) Tractor skidding should be limited to slopes of less than 40 percent. Based on site review, short, steep slopes may require a combination of mitigation measures, such as adverse skidding to a ridge or winchline, and skidding from more moderate slopes of less than 40 percent. Ground-based logging systems (tractor, skidders, and mechanical harvesters) would be limited to slopes less than 40% on ridges, convex slopes, and concave slopes when winter conditions exist; and less than 35% on concave slopes without winter conditions.
5) Keep skid trails to 20 percent or less of the harvest unit acreage. Provide for drainage in skid trails and roads concurrently with operations.
6) Retain as much slash as possible to return skid or leave within the harvest unit. Slash should be returned at the landing to the unit and distributed evenly throughout the unit. Slash would be returned to the unit as it is created and worked onto the skid trails. Large amounts of slash shall not be allowed to accumulate at the landings before it is returned in the unit. Slash shall be scattered on skid trails as skidding progresses on each trail. Within the harvest units, operations should retain 10-20 tons per acre of downed woody material larger than 3 inches diameter to be left scattered throughout the sale units.

Material will be aligned perpendicular to the slope as much as feasible including sub-merchantable material that is felled.

8) Install and maintain adequate road drainage to control erosion and comply with forestry Best Management Practices and maintain concurrent with hauling operations. To maintain drainage features and avoid rutting, the department would limit the season of road use to dry, frozen or adequately snow-covered conditions.

WATER QUALITY AND QUANTITY:

The existing condition of the Young Creek watershed (including Sink Creek) includes a mix of burn severity across most of the watershed. During field reconnaissance in the state parcel, moderate/high burn severity was observed along the portions of Young Creek which removed most or all of ground covering vegetation that served to filter runoff and stabilize surface soils. Due to most (~70%) of the Young Creek watershed being affected by the Caribou Fire, cumulative effects are expected to be high regardless of DNRC's alternative selection.

Water Quality and Quantity Existing Conditions:

Young Creek is a perennial watershed that flows easterly into Koocanusa Reservoir. The approximate size (which includes Sink Creek) is 22,697 acres. Ownership is 68% USFS, 21% Canadian (unknown owners), 7% non-industrial private, 3% State of Montana DNRC and 1% State of Montana FWP. Elevation within the Young Creek watershed ranges from approximately 2450 feet at the mouth to 7400 feet at the upper-most point.

A thorough description of the stream channel can be found in the Young/Sophie Timber Sale Environmental Assessment (DNRC 2002). The Young/Sophie Project included channel restoration on approximately 1600 feet of channel. This portion of the stream is stable and was not affected by the Caribou Fire.

The Caribou Fire burned approximately 14,022 acres (62%) in the Young/Sink watersheds including 342 acres of DNRC-managed lands. In October 2017, the USDA Forest Service conducted an assessment of the Caribou Fire watersheds to determine potential changes that may affect human life, property as well as natural resources and cultural resources. The unpublished report notes that Young Creek was the most impacted watershed with an estimated 20% of the watershed having moderate or high burn severity.

The existing condition (post fire) is expected to have increased flows during spring runoff. The report, which relies on models to predict the potential peak flow increases, notes that a 50% increase in flow volume may occur under average winter precipitation. Additionally, debris jams will likely form and result in channel migration.

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**		**Y**	**WQ-1**
Water Quantity	**X**				**X**							**X**	**N**	**WQ-2**
Action														
Water Quality	**X**					**X**					**X**		**Y**	**WQ-1**
Water Quantity	**X**					**X**						**X**	**N**	**WQ-2**

Comments:
WQ-1: As described in the existing condition above, the majority of the watershed burned in the Caribou Fire. Post-fire increases in sediment delivery and turbidity is well documented (*Jordan 2012, Besschta 1990*). Because flows are predicted to increase during spring runoff, an increase in sediment from channel scour would be expected for both alternatives. Channel migration could result from debris jam formation under both alternatives as well. Because no SMZ harvest is proposed under either alternative, no direct impacts to water quality would be expected. However, a secondary (indirect) impact may result (low risk) if the channel migrated to a skid trail utilized in the Action Alternative.

WQ-2: The predicted potential increase in flow is at least 50% regardless of the selected alternative (*Lloyd 2017*). Under the Action Alternative approximately 6 acres of green trees would be harvested, although the majority of the trees removed under the Action Alternative would be dead. This harvest would not be expected to have a measurable increase in water yield, although removal of the dead boles could alter wind patterns and snow melt rates. Therefore, a low risk of secondary (indirect) impacts could result from the Action Alternative.

Water Quality & Quantity Mitigation
Standard Forestry BMPs to minimize the risk of sediment delivery would be implemented.

FISHERIES:

Fisheries Existing Conditions:
Young Creek is considered as one of the most important westslope cutthroat spawning tributaries to Koocanusa Reservoir. Montana Fish, Wildlife and Parks implemented a stream restoration project in 2003 to improve fish habitat and improve sediment transport capabilities of the stream. Bull trout use the stream incidentally, but no spawning has been documented.

During August and September of 2017, the Caribou Fire burned the majority of the Young Creek watershed. Reports of dead fish in Young Creek were confirmed by USFS personnel (*Pat Price, Kootenai National Forest fisheries biologist, personal communication, October 2017*).

No-Action Alternative: 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.

Action Alternative (see Fisheries table below):

Fisheries	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Sediment	**X**				**X**						**X**		**Y**	**F-1**
Flow Regimes	**X**				**X**							**X**	**N**	**F-2**
Woody Debris	**X**				**X**						**X**		**Y**	**F-3**
Stream Shading	**X**				**X**						**X**		**Y**	**F-3**
Stream Temperature	**X**				**X**						**X**		**Y**	**F-3**

Fisheries	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Connectivity	**X**				**X**				**X**				**N**	**F-4**
Populations	**X**				**X**					**X**			**N**	**F-5**
Action														
Sediment	**X**					**X**					**X**		**Y**	**F-1**
Flow Regimes	**X**				**X**							**X**	**N**	**F-2**
Woody Debris	**X**					**X**					**X**		**Y**	**F-3**
Stream Shading	**X**				**X**						**X**		**Y**	**F-3**
Stream Temperature	**X**				**X**						**X**		**Y**	**F-3**
Connectivity	**X**				**X**				**X**				**N**	**F-4**
Populations	**X**				**X**					**X**			**N**	**F-5**

Comments:
F-1: See comments in Water Resources section above.

F-2: See comments in Water Resources section above.

F-3: Woody debris recruitment, stream shading and stream temperature are all likely to be affected by the effects of the Caribou Fire. Woody debris recruitment into the stream will likely increase due to a prevalence of dead trees along the stream. With the majority of trees along the stream killed by the fire, stream shading will be reduced and may result in increased stream temperatures. Under the Action Alternative, no harvest would occur within the SMZ of Young Creek. This would leave all trees within 50 feet of the stream. Along the majority of south side of Young Creek, no harvest would occur within 300 feet of the stream.

F-4: No stream crossings on Young Creek exist on the State parcel except for a ford that was previously closed. This crossing does not act as a barrier to fish. DNRC is not aware of any barriers to fish passage in the Young Creek watershed.

F-5: Pure strain westslope cutthroat trout populations are present in Young Creek and are expected to remain. A reduction in the population size due to the fire is noted as a low impact, however the number of fish killed is unknown.

Fisheries Mitigations:

1) Ensure the ford on Young Creek is impassible to vehicles to minimize sediment delivery from outside-the-channel sources.

WILDLIFE:

No-Action Alternative: None of the proposed activities would occur. No change to the density of burned snags would occur and wildlife would not be displaced by the proposed salvage activities.

Action Alternative (see Wildlife table below):

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	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**				**X**			**Y**	**WI-1**
Canada lynx (*Felix lynx)* Habitat: Subalpine fir habitat types, dense sapling, old forest, deep snow zone	**X**				**X**				**X**					
Sensitive Species														
Bald eagle *(Haliaeetus leucocephalus)* Habitat: Late-successional forest within 1 mile of open water	**X**				**X**				**X**					
Black-backed woodpecker *(Picoides arcticus)* Habitat: Mature to old burned or beetle-infested forest		**X**				**X**				**X**			**Y**	**WI-2**
Coeur d'Alene salamander *(Plethodon idahoensis)* Habitat: Waterfall spray zones, talus near cascading streams	**X**				**X**				**X**					
Columbian sharp-tailed grouse *(Tympanuchus Phasianellus columbianus)* Habitat: Grassland, shrubland, riparian, agriculture	**X**				**X**				**X**					
Common loon *(Gavia immer)* Habitat: Cold mountain lakes, nest in emergent vegetation	**X**				**X**				**X**					
Fisher *(Martes pennanti)* Habitat: Dense mature to old forest	**X**				**X**				**X**					

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
less than 6,000 feet in elevation and riparian														
Flammulated owl *(Otus flammeolus)* Habitat: Late-successional ponderosa pine and Douglas-fir forest	**X**				**X**				**X**					
Gray Wolf *(Canis lupus)* Habitat: Ample big game populations, security from human activities		**X**				**X**			**X**				**Y**	**WI-3**
Harlequin duck *(Histrionicus histrionicus)* Habitat: White-water streams, boulder and cobble substrates	**X**				**X**				**X**					
Northern bog lemming *(Synaptomys borealis)* Habitat: Sphagnum meadows, bogs, fens with thick moss mats	**X**				**X**				**X**					
Peregrine falcon *(Falco peregrinus)* Habitat: Cliff features near open foraging areas and/or wetlands	**X**				**X**				**X**					
Pileated woodpecker *(Dryocopus pileatus)* Habitat: Late-successional ponderosa pine and larch-fir forest	**X**				**X**				**X**					
Townsend's big-eared bat *(Plecotus townsendii)* Habitat: Caves, caverns, old mines	**X**				**X**				**X**					
Wolverine *(Gulo gulo)* Habitat: Alpine tundra and high-elevation boreal forests that maintain deep persistent snow into late spring	**X**				**X**				**X**					
Big Game Species														
Elk		**X**				**X**			**X**				**Y**	**WI-4**

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Whitetail		**X**				**X**			**X**				**Y**	**WI-4**
Mule Deer		**X**				**X**			**X**				**Y**	**WI-4**
Other	**X**				**X**				**X**					

Comments:

WI-1 Grizzly bear – The Project Area is located in grizzly bear non-recovery occupied habitat associated with the Northern Continental Divide Ecosystem (USFWS 1993, Wittinger 2002). The proposed salvage would occur for a brief period in the denning season during the winter of 2017/2018 and the summer of 2018. The proposed salvage would primarily remove dead trees; however, green trees would be removed from approximately 6 acres. Overall, effects to hiding cover would be minimal and any patches of young green trees providing hiding cover would be retained. All roads in the Project Area are closed to the public although illegal use of these roads was occurring before the area burned. To increase security for grizzly bears these gates would be repaired and berms would be reinforced to increase the likelihood these roads will remain closed to the public. The Project Area is also considered potential spring habitat and commercial forest management activities would be prohibited from April 1 – June 15 to protect bears during this time. Thus, minor adverse direct, indirect, or cumulative effects to grizzly bears would be anticipated.

WI-2 Black-backed woodpecker – Approximately 342 acres in the Project Area burned in the 24,764-acre Caribou Fire of 2017. The proposed salvage would affect 239 of these acres (70% of burned timber on DNRC-lands, 1% of timber burned in the Caribou Fire). The proposed salvage would decrease habitat quality for black-backed woodpeckers, which prefer dense stands of large trees which have burned within 5 years and are affected by bark beetles. The burned acres proposed for harvest would continue providing foraging habitat, but would not retain the 42-50 snags per acre as recommended for nesting habitat by *Caton 1996*. DNRC would retain suitable nesting habitat in one 31-acre patch that contains high quality, large diameter trees for nesting, is representative of the burn, and is located adjacent to additional burned timber stands on USFS lands (10% of potential black-backed woodpecker habitat as per *ARM 36.11.438(b)*). Currently, this adjacent burned timber on USFS lands is not proposed for salvage harvest (*USFS* 2017) and therefore has the potential to provide a nesting territory. An additional 35 acres of burned timber located in multiple patches throughout the Project Area would not be cut, adding up to 66 acres of burned black-backed woodpecker habitat with large trees that would not be cut (19.2% of burned habitat in the Project Area). All sub-merchantable materials that do not pose a risk to human safety would be retained, providing foraging opportunities in harvested areas. Additionally, mechanized activities would be minimized between April 15 - July 1 to minimize disturbance to nesting birds. Considering the amount of burned habitat available near the Project Area and that efforts would be made to retain suitable habitat on DNRC lands and minimize disturbance during the nesting season, minor adverse direct, indirect, or cumulative effects to black-backed woodpeckers would be anticipated.

WI-3 Gray wolves - Wolves may use habitat near the Project Area. Disturbance associated with timber sales at den and rendezvous locations can adversely affect wolves; however, timing restrictions would apply if den or rendezvous sites are documented (*ARM 33.11.430(1)(a)(b)*).

WI-4 Big game – The Project Area is considered potential winter range habitat for white-tailed deer, mule deer, and elk (*DFWP 2008*) and some browsing was observed on conifers in adjacent stands of unburned timber. The proposed activities would focus primarily on removing

dead and dying trees killed in the burn and would have minimal effects on thermal cover. Logging activity may displace wintering animals from November 1 – March 31 in the winter of 2017/2018. However, considering that very little forage and thermal cover remains in the area and more suitable winter range exists near the Project Area, it is unlikely that much displacement of wintering animals would occur. To minimize adverse effects to wintering animals, any surviving patches of green conifers would be retained where they occur to break up sight distances and provide thermal cover. Thus, negligible adverse direct, indirect or cumulative effects to big game are anticipated.

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)*.
- Close any road or skid trails opened with proposed activities to reduce the potential for unauthorized motor vehicle use.
- Prohibit commercial forest management activities from April 1 – June 15 to protect grizzly bears in the spring as per GB-NR3 (*USFWS and DNRC 2010*).
- Minimize mechanized activity within 0.25 miles of burned forested stands in the Project Area from April 15 - July 1 to reduce disturbance to black-backed woodpeckers.
- Retain sub-merchantable burned and unburned trees where soil, slope stability, and human safety concerns allow.
- Retain at least 2 snags and 2 snag recruits per acre >21 inches dbh or the next available size class, favoring sound Douglas-fir for retention. If snag recruits are unavailable retain 4 snags per acre. If large snags are cut for safety concerns, they must be left in the harvest unit. Retain a minimum of 10-20 tons/acre of coarse woody debris.

AIR QUALITY:

Air Quality	Impact												Can Impact Be Mitigated?	Comment Number
	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**			**Y**	**1, 2**
Dust		**X**				**X**				**X**			**Y**	**3**

Comments:

1. This project is not within an impact zone as described by the Montana/Idaho Airshed Group. Under the Action Alternative, some slash piles consisting of tree limbs, tops, and other vegetative debris would be created throughout the project area during harvesting and site prep. These slash piles would ultimately be burned after harvesting and site preparation operations have been completed.

2. Burning that may occur on adjacent properties in combination with the proposed action could potentially increase cumulative impacts to the local airshed. Thus, cumulative impacts to air quality due to slash pile burning associated with the proposed action would also be expected to be minimal.

3. Under the Action Alternative, dust may be generated by log hauling activities during dry conditions.

Air Quality Mitigations:

- Burning within the project area would be short in duration and would be conducted when conditions favor 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. DNRC would also follow regulations Lincoln County has for Air Quality. Thus, direct, secondary and cumulative effects to air quality due to slash pile burning associated with the proposed action would be minimal.
- Hauling would mostly occur during the winter reducing the level of dust created.

ARCHAEOLOGICAL SITES / AESTHETICS / DEMANDS ON ENVIRONMENTAL RESOURCES:

Will Alternative 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														
Historical or Archaeological Sites	**X**				**X**				**X**					
Aesthetics	**X**				**X**				**X**					
Demands on Environmental Resources of Land, Water, or Energy	**X**				**X**				**X**					
Action														
Historical or Archaeological Sites	**X**				**X**				**X**				**Y**	**1**
Aesthetics		**X**				**X**				**X**				**2**
Demands on Environmental Resources of Land, Water, or Energy	**X**				**X**				**X**					

Comments:

1. 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 revealed that the entire section was inventoried to Class III standards by the

United States Forest Service in 1990 as part of a land exchange with the DNRC (Formerly Dept. of State Lands). During the 1990 inventory, the remains of a small log cabin was formally recorded (24LN2141). The site locality is identified on the ground by DNRC staff and 24LN2141 will be avoided with timber salvage work. The proposed timber salvage will result in No Effect to state owned Heritage Properties.

2. The aesthetic value of this area has been severely altered following the Caribou Fire. Over time trees, forbs and grasses will regenerate lessening the effect of the fire. Under the Action Alternative, sawlog-sized trees would be harvested lessening the amount of area with concentrated blowdown that will likely occur over time. Areas would be regenerated with trees as quickly as possible especially where tree planting is planned.

Archaeology / Aesthetics Mitigations:

- A contract clause provides for suspending operations if cultural resources were discovered; operations in that area may only resume as directed by the Forest Officer following consultation with a DNRC Archeologist.
- Evaluating sites for additional tree planting would speed up recovery of forested conditions.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

- Young Sophie Timber Sale and Stream Restoration Project EA, February 2003

Impacts on the Human Population

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

Will Alternative 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**					

Will Alternative 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		
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		**X**			**X**				**X**				**Y**	**1**
Industrial, Commercial and Agricultural Activities and Production		**X**				**X**				**X**				**2**
Quantity and Distribution of Employment	**X**					**X**				**X**				**3**
Local Tax Base and Tax Revenues	**X**					**X**				**X**				**3**
Demand for Government Services	**X**				**X**				**X**					**4**
Access To and Quality of Recreational and Wilderness Activities		**X**				**X**				**X**				**5**
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:

1. No unusual safety considerations are associated with the proposed project. Because of the relatively small size of the proposed project, and mitigation measures that would be taken, health and safety risks posed by the project would be minimal.
2. The proposed timber sale would continue to provide logging-related industrial production in the region.
3. Due to the relatively small size of the proposed timber sale, no measurable direct, indirect, or cumulative effects would be likely. However, according to a report issued by the Bureau of Business and Economic Research (2008), an average of 10.0 jobs per million board feet of timber harvested is maintained in the timber industry.

4. Log trucks hauling to the purchasing mill would result in temporary increases in traffic on County Road #65. This increase is a normal contributor to the activities of the local community and would not be considered a new source of traffic; therefore additional government service would not be required.
5. Access within the State section would return to walk-in only, reducing the amount of roads that had been open to motorized use over the past few years.

Mitigations:

- Warning signs would be located along the private, county and Federal roads cautioning recreational and residential traffic of log hauling.
- Log trucks would be required to adhere to all posted speed limits and other applicable traffic laws.

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

Action Alternative: The timber harvest would generate additional revenue for the Common Schools Trust. The estimated return to the trust for the proposed harvest is $271,020 based on an estimated harvest of 1.5 million board feet (9,034 tons) and an overall stumpage value of $30.00 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.

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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?
No, not over existing hydrologic conditions.

Environmental Assessment Checklist Prepared By:

Name: Tye Sundt and Michael McMahon
Title: Forest Management Supervisors
Date: November 1, 2017

Finding

Alternative Selected

An Interdisciplinary team (ID Team) has completed the Environmental Analysis checklist (EAC) for the proposed Young Creek Fire Salvage Project. Following a thorough review of the EAC, project file, public correspondence, and Department policies and rules, the decision has been made to select the Action Alternative.

The project area is located on State-owned lands that are principally valuable for the timber that is on them (*Montana Codes Annotated [MCA] 77-1-402*). DNRC is required to salvage timber damaged by insects, diseases, fires, or wind events before it loses value to decay, provided such harvesting is economically warranted *(MCA 77-5-207*).

This Action Alternative proposes to harvest dead and dying trees that were burned in the Caribou Fire which would include installation of surface drainage features on existing roads, and possible reuse of a temporary road. Following harvesting activities, seedlings will planted where necessary, noxious weed infestations will be site specifically treated with herbicide, and earthen berms or other types of barriers will be installed near Young Creek and on other segments of DNRCs roads as they have been initially designated as restricted roads. Finally, a gate will be reinstalled on the north section line to allow access to the existing grazing/hay crop licensed area.

The action would take place in Section 16, T37N, R28W, an area of State school trust land in the Young Creek drainage which drains into the Koocanusa Reservoir. The total harvest volume would be approximately 1.5 MMBF of sawtimber.

Some primary reasons the Action Alternative was chosen include:

- The Action Alternative meets the objectives of the project (*I. TYPE AND PURPOSE OF ACTION*).
- The analysis of identified issues revealed no information compelling the Department to not implement this timber sale project.
- The Action Alternative includes mitigation measures designed into the project which help implement good management practices on the ground and reduce effects to the various resources affected by proposed actions (see *APPENDIX E - STIPULATIONS AND SPECIFICATIONS*).

Significance of Potential Impacts

I find that the Action Alternative will not have significant impacts on the human environment for the following reasons:

- Taken individually and cumulatively, the identified impacts are within Department policies, standards, and rules of the State Forest Management Plan, Habitat Conservation Plan, Best Management Practices, and the Streamside Management Zone law.
- The proposed activities, similar to past projects on State land using common practices in the industry, will not be conducted on unique or fragile sites.
- The Action Alternative will not preclude analysis of future actions on State land.

Need for Further Environmental Analysis

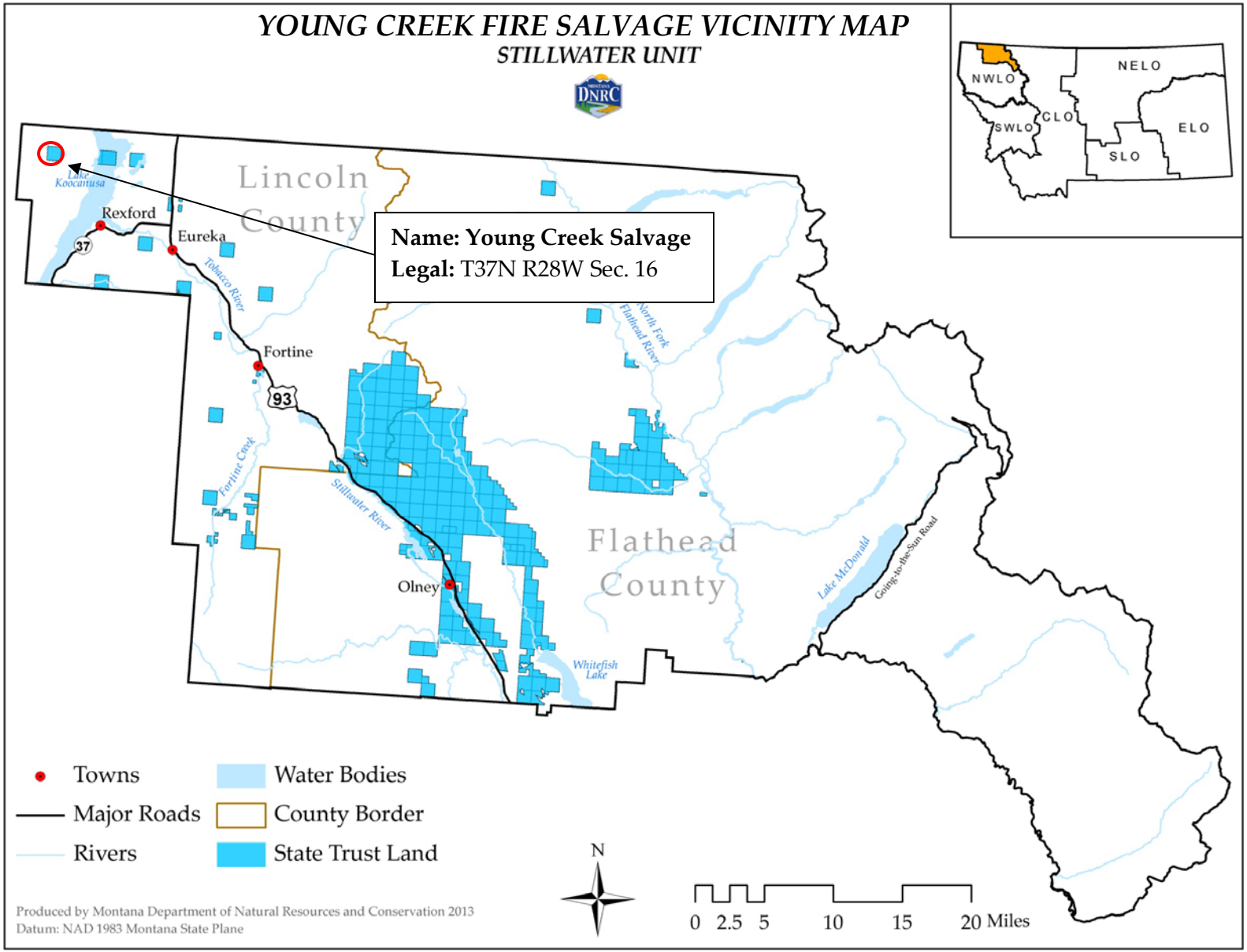
[ ]	EIS	[ ]	More Detailed EA	[X]	No Further Analysis

Environmental Assessment Checklist Approved By:

Name: Dave Ring
Title: Stillwater Unit Manager
Date: November 8, 2017
Signature: /s/ David A. Ring

Attachment A- Maps

A-1: Timber Sale Vicinity Map



A-2: Timber Sale Harvest Units